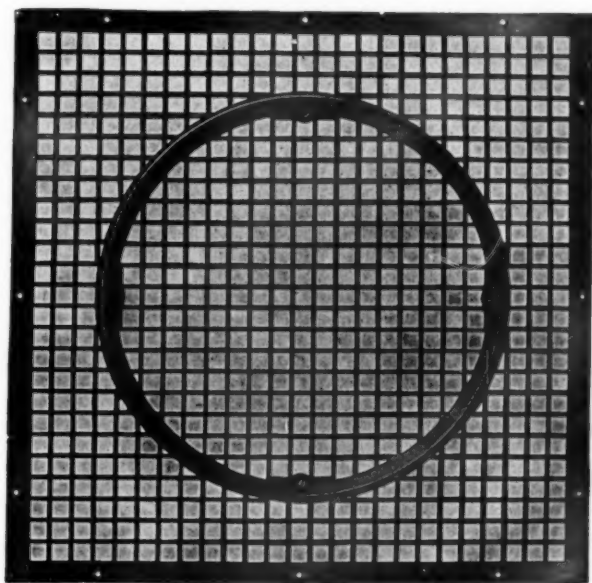


AMERICAN ARTISAN and Hardware Record

Vol. 82. No. 1.

620 SOUTH MICHIGAN AVENUE, CHICAGO, JULY 2, 1921.

\$2.00 Per Year.



Walworth Double Gratings

For your pipeless warm air heater installations we offer these strong, durable, attractive and economical gratings. Most installers prefer Walworth Gratings—once they use them they specify Walworth Gratings. Use a Walworth Grating on your next pipeless installation. The above illustration shows our plain lattice design—a good, neat grating—at a fair price.

Walworth Gratings for Pipeless Furnaces are made in seven standard sizes from 22 x 24 to 45 x 45. We carry a complete stock at all times and are able to fill orders for any quantity promptly.

Write us today for Catalog and Prices

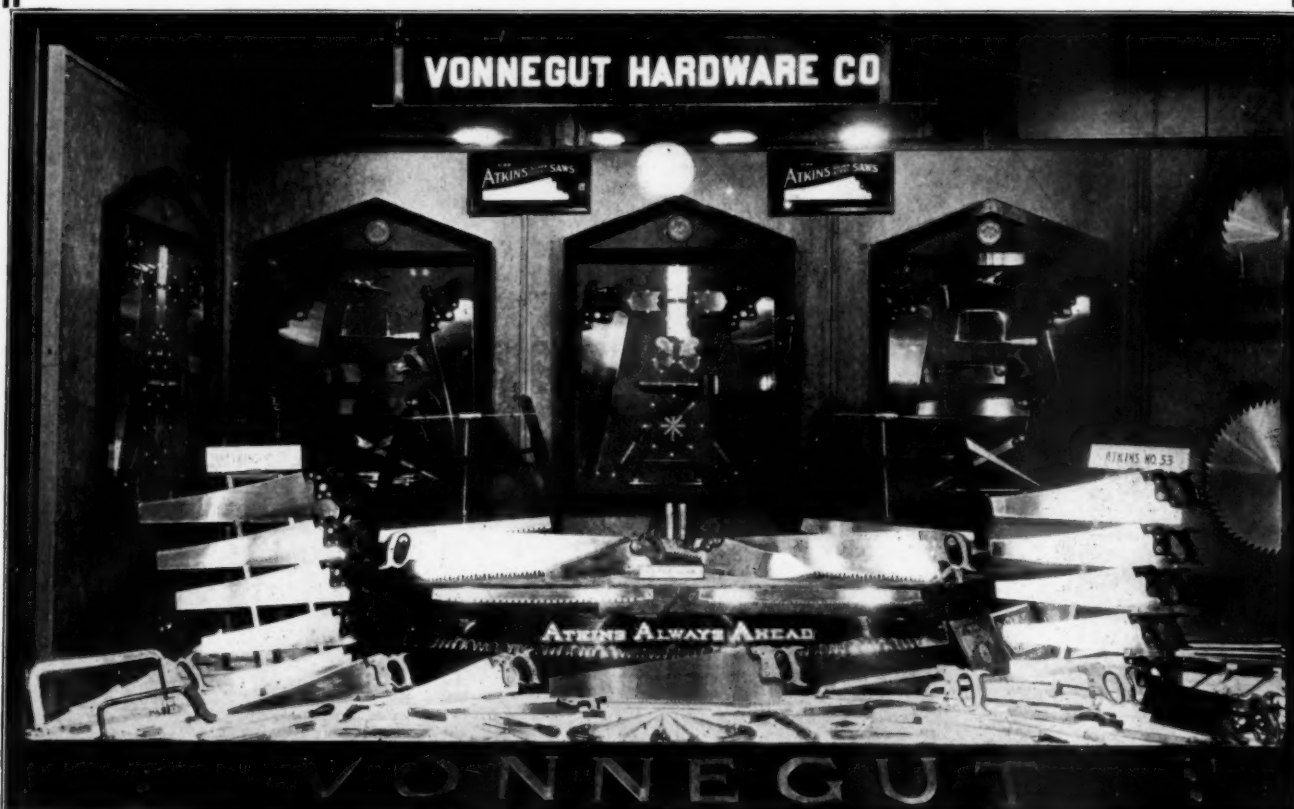
Walworth Run Foundry Company

W. 27th ST. AND N. Y. C. & ST. L. R. R.

Cleveland, Ohio

ATKINS

SILVER STEEL SAWS



*A saw selling prize window display of the VONNEGUT HARDWARE CO., Indianapolis, Ind.
Trimmed by Orval D. Harrison.*

Atkins Prize Window Displays

CAN you use \$10.00? Sure you can! Well, send us the photograph of an attractive Atkins Silver Steel Saw window display and we will give you \$10.00.

Each week we give someone a check for \$10.00. You can win if you try.

In the display shown above, Mr. Harrison featured Atkins Nos. 51 and 53 Saws with very satisfactory results. Try it in your display.

Write for display material. It's free. Do it today.

E. C. ATKINS & CO.



"The Silver Steel Saw People" HOME OFFICE AND FACTORY, INDIANAPOLIS, IND. Established 1857
CANADIAN FACTORY: Hamilton, Ont.

BRANCHES: Chicago, Ill.
Memphis, Tenn.
Seattle, Wash.

New York City
Minneapolis, Minn.
San Francisco, Calif.

MACHINE KNIFE FACTORY: Lancaster, N. Y.

Atlanta, Ga.
Portland, Ore.
New Orleans, La.

Sydney, N. S. W.
Vancouver, B. C.
Paris, France



FOUNDED 1880
BY
DANIEL STERN
Thoroughly Covers
The Hardware, Stove,
Sheet Metal, and Warm
Air Heating and Vent-
ilating Interests

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GET ON THE JOB, MR. WHOLESALER!

Several instances have come to the attention of American Artisan and Hardware Record which would seem to indicate that one of the reasons for the slow turn of business toward normal conditions is the failure of the hardware wholesaler to stock items for which he has specific orders from retailers.

In one case, the retailer included a dozen tools of a well known and heavily advertised make, along with other articles.

When the goods were received it was found that another brand of tools was substituted for the one ordered, and it so happened that the kind delivered was sold by another dealer in the same town.

It is quite possible, of course, that the two makes were similar in quality, but the first dealer had made a feature of this particular line of tools, and did not want to sell the same brand as his competitor.

He had a right to have his order filled as specified, and the wholesaler who substituted did so for no other reason than that he had some of the other make in stock, while it would be necessary for him to purchase a supply from the manufacturer of the line wanted by the dealer.

In this particular instance, this would have been very little trouble, for the wholesaler and the manufacturer are located in the same city, and the latter has a good stock on hand for just such cases.

As stated in the foregoing, this is not a unique instance; on the contrary, it is rather common, judging from investigations that we made when such reports became more than occasional.

It is, therefore, plain that some hardware wholesalers are not filling their positions as

distributors—that they are falling down on their job.

And the serious thing about it is that by such tactics, these wholesalers are retarding the return of normal business conditions, for every step taken now which hinders the free selling of merchandise—and such methods do hinder—is against the interests of those whom they are supposed to serve.

It is all very well to argue that the wholesaler must dispose of such stock as he has on hand before he places new orders, or that he must reduce his purchases to reasonable proportions of the incoming business.

If he has an over-supply of a certain item, let him dispose of such overstock by legitimate means, such as specific offers through his salesmen or by advertising of some kind.

It is manifestly unfair—both to the retailer who has built up a demand in his locality for a certain brand, and to the manufacturer who is spending his money to stimulate a demand from the dealers—to attempt to substitute other — advertised or non-advertised — brands, when the article ordered can be secured.

We have upon numerous occasions defended the wholesaler when unfair attacks have been made upon him by men who were mistaken in the direction of their efforts.

We believe that the wholesaler has a legitimate place in the chain of distribution.

But when any wholesaler strays off and does things which are unfair to either dealers or manufacturers, or to both, he subjects himself to just criticism, and we believe that the majority of the wholesalers of hardware will admit that substitutions of the sort mentioned and under the circumstances cited are unfair to both retailer and manufacturer.

Random Notes and Sketches

By Sidney Arnold

Secretary of Labor Davis made a statement the other day at Washington which, to my mind, shows him to be a man of clear thought and important judgment. Keep in mind that Mr. Davis was a staunch "union man" in the days when it was necessary for him to perform manual labor to earn his living, and also the fact that today he employs a large number of men and women in his private business.

Here is what he said:

"If you smash the unions you will have in their places secret, radical organizations which will lead directly to the revolutionary spirit that is unsettling Europe.

"On the other hand, this is no day for the loafer. The man who does not work should receive no pay. The labor unions should either fine or fire the loafers."

The result of the recent election held by the American Federation of Labor by which Samuel Gompers was retained as President would seem to indicate that by far the greater number of the leaders among organized labor are not willing to subscribe to the tenets of those who clamor for the imagined right of "Labor" to seize the product of their work on the principle that Capital has no standing.

If organized labor will clean out the crooked business agents and other grafters who are robbing not only the men whose interests they are supposed to represent but also the employer, there will be more sympathy among the general public with the real constructive measures for which truly progressive labor leaders stand.

* * *

One thing is obvious nowadays. It is this, that women no longer wipe up all the dirt and germs from our sidewalks with the hems of their skirts. Most of the consequences of this change of fashion are pleasing to the observer, says my friend, O. L. Moon, of Scheible-Moncrief Heater Company, Cleveland, Ohio.

Occasionally, however, minor inconveniences depend upon the hygienic brevity of dress. He cites the subjoined example:

"What's the matter, little girl," asked a stranger of a child he found weeping bitterly.

"I can't find my mamma."

"When you're out with your mother you should hang on to her skirts. Then you wouldn't get lost."

"I'm too little. I can't reach them."

* * *

Although never indulging in the slightest manifestation of foppery, my friend, Louis Kuehn, of Milwaukee Corrugating Company, Milwaukee, Wisconsin, is a stickler for neatness and cleanliness.

Hence, his answer to the oleaginous individual in the following incident is quite in keeping with his tastes and cleverness:

Friend Kuehn was waiting for a train the other day when the greasy specimen in question tried to strike up a conversation with him.

The seedy-looking individual's shirt was far from spotless and his coat and vest were covered with grime

and grease, but in his buttonhole he sported a red, red rose.

"Where do you suppose I got this?" he asked.

"I don't know," admitted Brother Kuehn. "Maybe it grew there."

* * *

Service is the big thing in the business world today, says my friend Josiah Borden, of the Borden Stove Company, Philadelphia, Pennsylvania.

There are many ways of improving the service of one's establishment. In extremely rare circumstances, it is conceivable that improvement of service may be brought about by the omission of some part of it.

The idea, perhaps, is expressed in the following dialogue:

"I see," said one suburbanite to another, "that they have taken the five-fifteen off this line. Do you miss it much?"

"Not as often as when it was on."

* * *

One of the pitfalls of knowledge which should be scrupulously avoided in advertising and other business activities, is the use of words which have a double meaning or whose spelling differs from that of a similar word which has the same sound.

My friend, H. E. Doherty of Safety Furnace Pipe Company, Detroit, Michigan, ex-president, Michigan Salesmen's Auxiliary, sends me the following striking illustration of this observation:

Voice at Phone: "Hello—hello—that you, George? Listen, old man. I'm up against it and I'm looking for a little financial succor again."

Voice at Other End: "Say, do you mean to insinuate—?"

* * *

It isn't wise to depend upon the fulfilment of expectations, says my friend E. L. Billings, President of Abbott & Son, Marshalltown, Iowa. He offers an argument in the following:

There recently died in Iowa an aged farmer, reputed to be wealthy. After his death, however, it was discovered he left nothing. And his will ran like this:

"In the name of God, amen. There's only one thing I have. I leave the earth. My relatives have always wanted it. Now they can have it."

* * *

The Funniness of Words.

Because a newspaper you skim
It is not therefore scum;
Though round a cask you put a rim
You can not say 'tis rum.

Because you're always asking "Why?"
You will not thus get wise;
And though for greater girth you sigh
'Twill not increase your size.

When Cupid gives your heart a stab
You do not call it stub;
An opportunity you grab,
And yet it is not grub.

Although a glass of wine you sip,
You have not therefore sap;
Nor do you say about a tip:
"The janitor I tap."

Because you do things in your den
They are not therefore dun.
(A lot more quiblets I might pen,
But why should they be pun?)

—Lippincott's Magazine

Up-to-the-Minute News Siftings

*Items of Interest to Dealers Gleaned from Many Fields.
National and Local Business Plans, Problems, and Practices.*

COMPLETES PORCELAIN ENAMELING PLANT FOR "RED CROSS" STOVES.

With an enameling capacity of fifty "Red Cross" stoves a day, the Co-operative Foundry Company, Rochester, New York, has recently completed its porcelain enameling plant. This is a concrete structure adjoining the main assembling plant. It contains 7200 square feet floor space.

The company is now installing a new 450 horse power Kerr Turbine to generate its own electricity and is equipping its entire plant with separate motor units for each department. This new motorized system will be in full operation by August 1st.

At the present the Co-operative Foundry Company is enameling its two styles of coal and gas combination ranges, one steel and one cast iron straight coal range in colors, grey, blue, green, and black.

The full line of "Red Cross" enameled stoves is beautifully illustrated in colors and convincingly described in the catalog of the Co-operative Foundry Company, Rochester, New York, which may be had upon application.

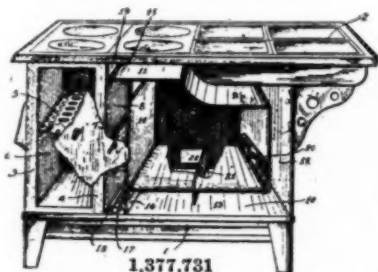
Gets Trade-Mark Registered for Stove Polishes.

Under number 141,798, United States Patent Office registration has been granted to Josiah H. Crocker, Cambridge, Massachusetts, for the trade-mark reproduced herewith. The particular description of goods to which it applies is stove polishes. Application for registration was filed December 3, 1920.

WAX
141,798.

Gets United States Patent Rights for Range.

Henry H. Sanford, Mansfield, Ohio, has obtained United States patent rights, under number 1,377,731, for a combined gaseous and solid fuel range described as follows:



In a combined gaseous and solid fuel stove, an oven secured within the stove having communicating flues surrounding the oven except at one end, said end being spaced apart from and secured to and in close proximity to the fire box to form an independent flue, means to close the top of the last mentioned flue, a damper secured in said flue, a burner for gaseous fuel located at the bottom of said flue.

Man seldom forgets a favor he does another.

New Minnesota Compensation Law Is Now in Effect.

The new Minnesota Compensation law, which went into effect June 1, 1921, requires that every employer (except employers of farm labor or domestic help) who has one or more persons in his service, must protect them, and at the same time protect himself, with compensation insurance "in some insurance carrier authorized to carry such liability in the state of Minnesota," unless he can prove to the satisfaction of the state authorities that his financial strength warrants their permission to carry the risk himself.

This law affects not only those concerns who employ large numbers of workmen in relatively hazardous occupations, but also every business or professional man who employs one or more persons.

Stove Company Plans Addition.

The Keeley Stove Company, Second and Linden Streets, Columbia, Pennsylvania, plans a two-story building, 30 by 50 feet, to cost about \$20,000.

Gets Trade-Mark Registered In Patent Office.

Wheeling Corrugating Company, Wheeling West Virginia, has secured United States Patent Office registration, under number 143,024, for the trade-mark herewith reproduced. The particular description of goods to which it applies is sheet metal gas and oil stoves and ovens, stovepipe, stovepipe elbows, and flue thimbles. The Company claims use since January 1, 1921, on sheet metal stoves and oven; since January 1, 1900, on stovepipe and stovepipe elbows, and since about February 15, 1916, on flue thimbles.

CORCO
143,024.

Incorporates Stove Company.

The Bristol Stove and Foundry Company, Bristol, Virginia, has been incorporated with a capital stock of \$50,000 by J. C. Rucker, H. E. Wilkinson, and others.

Says Ad in AMERICAN ARTISAN Brings Good Results.

TO AMERICAN ARTISAN AND HARDWARE RECORD:

I thank you very much for the good results of advertisement in your journal. It brought me just the kind of mechanic I need.

W. R. SHAW.

—, Illinois, June 9, 1921.

The trouble with some get-together meetings is that they're apt to turn into a pry-'em-apart prize fight.

The Week's Hardware Record

*What Retailers, Jobbers, and Manufacturers Are Doing.
Latest Selling Methods. Experiences of Successful Men.*

FRED E. MUZZY GIVES REASONS IN FAVOR OF REVOLVERS.

The following letter has been received from F. E. Muzzy, Springfield, Massachusetts, who is well known to many retail hardware dealers.

Mr. Muzzy takes up the cudgel for those who disagree with John R. Thompson, the chain restaurant and grocery store owner of Chicago, who wants to have the manufacture and sale of revolvers prohibited. His letter follows:

TO AMERICAN ARTISAN AND HARDWARE RECORD:

In response to your article of recent date, in regard to Mr. Thompson's theory that revolvers should not be manufactured in America nor allowed transportation through the mails, I beg to state that Mr. Thompson may be all right in theory, but his theory is not workable.

I am not interested in the manufacture, sale nor advertising of firearms of any kind, hence can approach Mr. Thompson's declaration with an open mind.

I am not writing with a view of capturing Mr. Thompson's \$1,000.00 reward, but rather, to set his mind working in the right direction, for now it is headed absolutely the wrong way.

IF—that little word that has been the big stumbling block down through the ages—everybody was absolutely honest, unselfish, moral and just we would need no firearms, no jails, no laws, no courts, no lawyers. Because of that IF, socialism—fine in theory—is an absolute failure, for if we were all perfect none would need protection; in fact our wings would develop so we could fly directly into Heaven, and not be obliged to rap at the Pearly Gates for Saint Peter to unlock them and take up the pass word.

Every sane human being believes in honesty, yet thieving and murder are going on constantly, the world over, notwithstanding stringent laws are supposed to prevent crime of every kind; hence our police, constabulary, soldiers, etc., for the protection of the weak and innocent. Remove this protection and pandemonium would break loose in thirty minutes.

As an example, take the law-abiding, staid old city of Boston. When the police struck last year, within a few hours thieving, arson, rape and murder were running rampant in that usually peaceful city, and it was necessary to call out the state troops to restore law and order, and it was necessary to have—for self protection, and to subdue the thugs and lawless—not only revolvers, but riot-guns as well. The firm stand the then Governor of Massachusetts took in this matter, and his promptness in quelling the disorder resulted in his being elevated to the office of Vice President of the United States.

The great, great majority of our people are not only in favor of law and order, but also against the use of firearms for the destruction and injury of human life,

but the few who are bent on wrong-doing *must* be restrained, and to do this the protector *must* have firearms with which to meet his adversary.

IF there were no firearms made in America the law-breaker would get his supply from abroad, through his friends, or by the underground route, and law-abiding citizens would be hopelessly handicapped for lack of protection; in fact, before firearms were invented, if history is correct, there was conflict, both personal and national, and the percentage of deaths was far greater then, when the spear and bow and arrow were the means of offense and defense. Even at the beginning of the world the Bible tells us Cain killed Abel, and I doubt if Cain had a revolver at that time. Later on it was reported that David won the battle from the Philistines by killing Goliath with a sling-shot.

Ancient history proves conclusively that revolvers are not the cause of all the troubles and murders happening in every land.

It is the *abuse* and not the use of the revolver which causes nearly all the trouble referred to by Mr. Thompson, and all the laws which have been enacted to regulate the sale of firearms have not only been so crude as *not* to protect law-abiding citizens, but they *did not* and *can not* prevent the hold-up man, the booze-runner and the thug from getting the latest, best and most efficient firearms made, suited to their purposes.

Because laws do not prevent theft and murder entirely, we can not say the laws are absolute failures and should all be abolished.

The fact that the use of firearms is abused, does not mean they should not be manufactured in America, as the law-abiding citizen knows it is absolutely for the well-being of the people of America, for law and order, to have firearms for self protection—notwithstanding Mr. Thompson's views to the contrary, just as much as it is necessary that we have laws to protect those who want to do right.

As to transportation, that is a minor point, for revolvers can be sent by person, by freight, by express, equally as well as by mail, hence the mailing objection amounts to nothing.

F. E. MUZZY.

Springfield, Massachusetts, June 23, 1921.

Hardware Company Is Organized.

At Aberdeen, South Dakota, the Home Hardware Company has been incorporated with a capital stock of \$50,000. Incorporators are John H. Jackson, W. H. Dukes, and Howard Smith.

Nail Company Is Incorporated.

With a capital stock of \$50,000, the Stoughton Nail Company, Stoughton, Massachusetts, has been incorporated by Edward A. Sheehan, John B. Welch, 18 Prentice Street, Cambridge, Massachusetts, and others.

Expert Mechanics Have No Monopoly on Using High Quality Tools, Says Jerry.

With Proper Salesmanship Customer Can Often Be Induced to Purchase Better Saws, Chisels, Planes, etc.

Written for AMERICAN ARTISAN AND HARDWARE RECORD by Jerry Gerlock, Hardware Merchant.

On my way home from the 1920 Retail Hardware Convention in our state I stopped in a small manufacturing city which also enjoys the advantage of a fine farming community for many miles surrounding it.

I had heard that one of the hardware dealers in this city had built up a big business on tools and that he was selling a much larger percentage of the higher priced items than is the case in the average store, so I made it a point to step into his place of business and to find out how he did it.

The first thing that struck me was a very handsome window display of saws. I have forgotten how many

grade of tool steel that helps to keep the saw sharp much longer than usual, and just note how well balanced it fits into your hand."

The farmer said, "How much do you get for it?"

"\$3.80," was the reply.

"How is that?" asked the customer. "You have some good looking saws in the window marked \$1.48. How does it come that you ask so much more for this one?"

"Yes, I know," replied Jones, "it does look like a lot of money, but here is a point that you may not even have thought of in this connection: Do you remember



Effective Window Display of Atkins Saws. Arranged by M. E. Klasky for the Kelley-Duluth Company, Duluth, Minnesota.

different kinds there were in the window, but my impression was that if I wanted to buy a saw here was the store to get it. Almost every style of saw that I had ever heard of, was displayed.

And there was another interesting fact about this window display which will be touched on later.

Upon introducing myself to the owner of the store, I told him that I would like to have him tell me how he had built up his big tool business, because in my own store this department was not doing as well as I felt it ought.

While we were talking, a farmer came in and asked to see a hand saw. Jones, as we shall call the dealer, opened a carton and took out a nicely wrapped Atkins saw. Handing it to the customer, he said: "This is the best saw that we have been able to buy. It is made of what the manufacturers call 'Silver Steel,' a special

when you bought that new razor of yours last fall? You paid a rather high price for the one you finally selected, because your beard is hard and your face is tender, and you wanted a razor that you could be sure would hold its edge and that you could depend on in every respect.

"I showed you cheaper grades, you know, but you wouldn't have any other than that special Swedish blade.

"It is just the same way with this saw. You are going to use it in all sorts of wood. Some day maybe you will strike a nail or an extra hard knot, and you don't want to have to stop to reset and sharpen your saw every time that happens, do you?"

"Yes, that may be all right," was the farmer's reply, "but how does it come that there is such an awful difference in price between the two?"

"It is for just the same reason that there is a difference of about five dollars between our lowest grade and the best razor we carry. The cheap razor will shave you all right, maybe, but you have a regular job of honing it almost every time you want to use it, while the good one you bought will only need special treatment of that sort two or three times a year, at the most, with ordinary care, such as wiping it thoroughly and stropping it after you are through shaving.

"The kind of steel of which this saw is made is just as much superior to the steel in the cheap saw you mentioned as your good razor is in comparison with one of the dollar grade.

"And here is another point you will appreciate: You will treat this fine saw just like your Sunday suit, or just like your high quality razor—it won't be left wherever you happen to use it. No, when you have finished the job, that saw is going to be wiped off carefully and put away in your tool chest or in some other safe place where dirt and damp air will have no chance to affect it.

"On the other hand, suppose you did buy the cheap saw, you will most likely treat it like any other cheap tool you have, or like the pair of overalls that you use when you are working around your car—leave it lying around in the woodshed or the yard where it may get a few teeth knocked off or rust all over.

"Of course, if you really want this cheap saw, I'll sell it to you, but you will soon have occasion to replace it, and then you will surely buy this really good saw. So why not buy it now?"

"Well, I guess you are right. I'll take this one. Now show me a good plane."

Inside of half an hour, Jones sold him the saw, the plane, a set of chisels, a steel square, a claw hammer, a shingle hatchet and several other tools, and in each case the farmer selected—or rather let Jones select them for him—the best tool of its kind, with little or no argument about the price.

After the customer left, Jones explained to me that this man, who was of Swedish descent, had just bought a farm and that he had sold him his stoves and house-keeping outfit, and that while he was inclined to be a little "close," the proper quality argument usually won him over to the better class of goods.

"Of course," said Jones, "it isn't every customer that I can persuade to buy what he really ought to have, but the percentage is great enough to justify the effort.

"Maybe you wondered why that window display of mine is arranged just the way it is, and why I have price tickets on the low grade tools and not on the better ones?"

"This is the way I have figured it out in my mind, and experience seems to prove that I am right:

"A good looking display of tools will interest almost every one who owns a home or who lives in a house that he has to take care of.

"Like this farmer did, the passer-by sees the saw with the price ticket. He says to himself, 'That looks like a pretty fair saw for that price.' So he comes in and asks for a saw. I show him an Atkins saw, and usually about the same conversation takes place that you overheard, unless the prospect happens to be a man

who I know hasn't the money to pay for one of that high quality, in which case, of course I show him the low grade saw.

"We sell five or six good saws to every one of the cheap ones."

I had learned something right there, and left Jones with my mind firmly made up that from now on this was the method that we would use in our tool department, as well as with all the other lines in our store.

Incidentally, it may interest you that now I know from my own experience that Jones was right, and that he is right, right now, for my tool sales have gone away ahead of any previous record, and we are selling a much larger percentage of the better grades than we ever did.

It will work the same way in your store, if you give Jones' plan a real try-out.

In the accompanying illustration you will recognize a very artistic window display of Atkins saws which can easily be adopted to the conditions of almost any hardware store.

M. E. Klasky, who arranged this window for the Kelley Duluth Company, Duluth, Minnesota, tells me that it helped very materially to increase their sales of saws and other tools.

Gets Trade-Mark Registered for Clothes-Washing Machine.

Under number 136,319, United States Patent Office registration has been granted to the Surf Manufacturing Company, Milwaukee, Wisconsin, for the trade-mark reproduced herewith. The trade-mark consists of the representation of the surf and



the word "Surf," as shown in the drawing. The particular description of goods to which it applies is cloths-washing machines. The Company claims use of this trade-mark since August 6, 1919.

Incorporates Nail Company.

The Stoughton Nail Company, Stoughton, Massachusetts, has been incorporated with a capital stock of \$50,000 by Edward A. Sheehan, John B. Welch, 18 Prentice Street, Cambridge, Massachusetts, and others.

Trade-Mark Is Registered for Washing and Ironing Machines.

The Easiest Way Manufacturing Company, Sandusky, Ohio, has procured United States Patent Office registration, under number



142,199 for the trade-mark depicted herewith. The particular description of goods to which it applies is laundry washing machines and laundry ironing machines. The Company claims use of this trade-mark since September 17, 1912, and application for registration was filed May 10, 1920.

Good Ideas for Window Display

*Practical Lessons from Exhibits in AMERICAN ARTISAN
AND HARDWARE RECORD Window Display Competition.
How to Get More Passers-By to Come into Your Store.*

REALISTIC WINDOW DISPLAY INCREASES RAZOR SALES.

An unusual and striking window display is shown in the accompanying illustration.

It was decorated by Howard C. Crabb, for The Belcher and Loomis Hardware Company, 83 to 91 Weybosset Street, Providence, Rhode Island.

It has the virtue of novelty in a high degree.

Unlike many unusual window displays, however, its novelty serves the definite purpose of centering attention upon a particular line of commodities.

The objection which holds against many novel win-

it won't do you any good. You probably won't sell ten cents' worth of goods in addition to your usual sales.

Novelty as a drawing power must be intimately and logically connected with sales motives in a display.

In the window exhibit under discussion the very unusual and realistic reproduction of a barber shop arrests the notice of passers-by and directs it to the particular brand of razor which is featured in the display.

The appropriateness of this design is apparent to scores of people who have read the advertisements of this particular razor in national publications.

The manufacturers repeat in practically all their copy



Nationally Advertised Razors Arranged by Howard C. Crabb, for The Belcher and Loomis Hardware Company, 83 to 91 Weybosset Street, Providence, Rhode Island.

dow exhibits is that the novelty of the exhibits while attracting attention distracts the thoughts of the observer from the goods on display.

There is little or no profit in a big crowd gathered in front of a store window, if the main motive of their collecting there is curiosity.

It is the easiest thing in the world to draw a big crowd to a window. You can do it by a thousand and one different methods.

Have one of your clerks stand in the window and slowly extract a potato from his hip pocket and solemnly place it in the center of the saucer held aloft in one hand. Let him repeat that operation time and time again and it will take all the police reserves in your town to keep the crowds away from your window. But

the argument that barbers do not use safety razors; that they would use them if they were better than the old style razors; and that the old style razor is the best for the man who shaves himself.

As described by Mr. Crabb, who arranged this window display, "the background was made up of wall board painted white. The floor was covered with a tile paper. In back of the barber was a shelf with razors, hair clippers, toilet water, powders and all the needs used in a barber shop.

"This being a corner window people could look in both windows and see the window at different angles. Attractive show cards of an orange shade with black letters were placed on the background which drew the people to read them.

"The sink, shower, sterilizers, chair, barber and man in the chair brought the people to the window and made them look. Green plush was puffed to the front of the window with the razors thrown carelessly among its folds.

"Attractive show cards were placed near the plush, one telling about the razors and the other inviting the passer-by to come in and take a razor in his hand to see what a beautiful tempered steel it has and how well it is balanced.

"This window attracted attention and sold the goods and that is all that's expected of a window."

Sedgwick Hand Elevators Are Backed by Good Service.

Two hundred and seventy-eight years ago General Robert Sedgwick established the first furnace and iron works in Lynn, Massachusetts.

He adopted for his guidance this motto: "The profit in any sale is of less importance than the opportunity the transaction affords to make of the purchaser a permanent customer and friend."

His name and policy are continued in the Sedgwick Machine Works, New York City, the present Treasurer of which is the ninth direct descendant of the founder of the original iron and furnace business.

The Sedgwick Machine Works was originally established at Poughkeepsie, New York, by Alonzo Sedgwick and Justus Ingersoll Wakelee in 1893, they having decided to concentrate their efforts upon the manufacture of hand power elevators and dumb waiters. The business proved successful and was incorporated in 1913 and later the headquarters moved to New York City, with Mr. Wakelee as President and Mr. Dwight Robert Sedgwick as Treasurer.

The advantage of the Sedgwick hand elevators and dumb waiters is demonstrated by the number of instances in which they have replaced electric and other power elevators. There are a number of chain stores now using this service after a thorough test of power elevators.

The company manufactures elevators for almost every conceivable purpose and use and their ease of operation is clearly indicated in their Catalog O, where an illustration shows a five-year-old boy running a Sedgwick invalid elevator in which his grandfather is being carried to the third floor.

The balance in this invalid elevator is so nicely adjusted that practically no strength is required to start or stop it, and in most cases but little more effort is necessary than in the starting of a power elevator.

Catalogs showing the various uses and ease of operation of these elevators will be sent upon request by the Sedgwick Machine Works, 165 West 15th Street, New York City.

Oppose National Legislation Restricting Revolvers.

The Shields bill prohibiting interstate shipment of small fire arms of less than 45 caliber is strongly opposed by manufacturers, shippers, and dealers.

This bill is pending in Congress. Representatives of manufacturers; of the United States Revolver Association;

of the Association of Railway Executives; and of the National Board of Promotion of Small Arms Practice, appeared before a Senate Committee in Washington, D. C., June 28th, to protest against the passage of the Shields bill.

The spokesman for the manufacturers, S. M. Stone of the Colt Arms Company, declared that the bill would result in the suspension of small arms manufacture.

He explained that the demand for arms which would be permitted in interstate commerce by the Shields bill would not be sufficient to warrant the manufacturers continuing in business.

Coming Conventions.

Sheet Metal Contractors' Association of Ohio, Hotel Gibbons, Dayton, Ohio, July 19, 20, and 21, 1920. William J. Kaiser, Secretary, 123 East Chestnut Street, Columbus, Ohio.

Michigan Sheet Metal Contractors' Association Annual Outing, Grand Rapids, Michigan, July 29 and 30, 1921. Frank E. Ederle, Secretary, 1121 Franklin street, S. E., Grand Rapids, Michigan.

Kentucky Hardware and Implement Association, Jefferson County Armory, Louisville, Kentucky, January 24, 25, 26, and 27, 1922. J. M. Stone, Secretary-Treasurer, Sturgis, Kentucky.

West Virginia Hardware Association Convention and Exhibition, Wheeling, January 31, February 1, 2, 1922. James B. Carson, Secretary, 1001 Schwind Building, Dayton, Ohio.

Nebraska Retail Hardware Association Convention, Lincoln, February 7, 8, 9, 10, 1922. George D. Dietz, Secretary, 414-417 Little Building, Lincoln, Nebraska.

Wisconsin Retail Hardware Association Convention and Exhibition, Milwaukee, February 8, 9, 10, 1922. P. J. Jacobs, Secretary, Stevens Point, Wisconsin.

Illinois Retail Hardware Association Convention, Hotel Sherman, Chicago, February 14, 15, 16, 1922. Leon D. Nish, Secretary, Elgin, Illinois.

Minnesota Retail Hardware Association Convention, St. Paul, February 14, 15, 16, 17, 1922. H. O. Roberts, Secretary, 1030 Metropolitan Life Building, Minneapolis, Minnesota.

Ohio, Hardware Association Convention and Exhibition, Columbus, February 14, 15, 16, 17, 1922. Headquarters, Deshler Hotel. Exhibition, Memorial Hall. James B. Carson, Secretary, 1001 Schwind Building, Dayton, Ohio.

Missouri Retail Hardware Association Convention and Exhibition, St. Louis, Planters Hotel, February 21, 22, 23, 1922. F. X. Becherer, Secretary, 5106 North Broadway, St. Louis, Missouri.

New York State Retail Hardware Association Convention and Exhibition, Rochester, February 21, 22, 23, 24, 1922. Exhibition at Exposition Park. Headquarters and sessions at Powers Hotel. J. B. Foley, Secretary, 412-413 City Bank Building, Syracuse, New York.

Michigan Retail Hardware Association Convention and Exhibit, Grand Rapids, Michigan, February 7, 8, 9 and 10, 1922. Karl S. Judson, Exhibit Manager, 248 Morris Avenue, Grand Rapids, Michigan. A. J. Scott, Secretary, Marine City, Michigan.

Retail Hardware Doings.

Iowa.

E. G. Johnson purchased the Sanden and Son implement and hardware concern in Forest City.

F. J. Drilling, a former hardware merchant of Craig, has sold his hardware store at Rock Rapids and will move to Le Mars.

Charles Seitem has sold his hardware store in Allison to Mrs. Bessie McCann of Janesville.

Fred Heyer of Council Bluffs, traded a farm for the hardware store at Tingley. He will not move to Tingley, but has made several trips over looking after the business there.

Reynolds and Balch Company, hardware dealers, has increased its capital stock from \$15,000 to \$30,000.

Missouri.

Raymond and Raphael Stacy have sold the hardware department of their store to Clyde Sealock at Trenton.

Minnesota.

Fire that started in the paint room of the Nicollet Hardware Company, 3743 Nicolett Avenue, Minneapolis, caused a loss of \$2,500.

Roy Winsor and E. R. Sandstrom have dissolved their partnership in the Isle Hardware Company at Isle, Mr. Sandstrom having purchased Mr. Winsor's interest in the company.

Advertising Help and Comment

Send Us Copies of Your Advertisements. Let Us Help You Get Bigger Results by Advice and Suggestions. The Service Is Free. Don't Hesitate to Take Advantage of It.

An unusually satisfying advertisement is that of Goodyear Brothers Hardware Company, which is reproduced herewith from the *Hastings Banner*, Hastings, Michigan.

In reading this advertisement, one gets the impression of accurate statement, and feels that care has been taken to avoid over estimating the value of the argument set forth. The display lines at the top carry

meet your requirements enable you to make the best of conditions as they come."

The friendliness of the advertisement is so genuine and helpful, that one is instinctively influenced in favor of the Goodyear Brothers Hardware Company.

Worthy of special mention is the paragraph in which the company's service is presented to the prospective customer in a manner which leaves no room for doubt as to the earnestness with which it is offered.

Particularly good merchandising is contained in the expression:

"You can come to our store—take full advantage of our stock, study the implements, get fully acquainted with every feature, and buy judiciously."

* * *

The business card has its uses.

It serves as an introduction.

Also it gives the location and character of the business of the firm whose name is printed thereon.

However, it has little, if any, selling influence.

The advantage of printing a business card in a newspaper is that it is thus more widely distributed than if dealt out by a few members of the firm here and there.



That is the most which can be said in favor of running a business card as an advertisement in a newspaper.

The Puestow Hardware and Construction Company could undoubtedly get more selling service out of the space which their advertisement occupies in *West Bend Pilot*, West Bend, Wisconsin, if they would change it in such a fashion as to center attention upon some special commodities for sale.

Good Implements Are Good Bargains

You Will Need Them to Help You Solve Your Problems Next Season

You could turn the soil into a seed bed with a spade; you could plant and cultivate with a hoe; you could harvest with a sickle, thresh with a flail, and carry your grain to market in a sack.

You could perform all of those operations at slight cost for the implements used.

But it wouldn't pay. Not in this day and age.

You couldn't produce the surplus that makes modern farming a real business.

You couldn't operate your farm at a profit per bushel, per ton, or per acre.

Good implements—plenty of them to meet your requirements—enable you to make the best of conditions as they come.

They multiply your farming power, enable you to take good advantage of favorable weather, increase your yields and cut your cost of production.

You can't afford to do without needed implements, nor can you afford to use inferior implements.

Our service makes it easy for you to get good implements. You can come to our store—take full advantage of our stock, study the implements, get fully acquainted with their every feature, and buy judiciously.

That way of buying will help you get the most from the year that is coming.

Drop in the next time you are in town and see our stock.

Goodyear Bros. Hardware Co.

HARDWARE, IMPLEMENTS AND AUTOMOBILES.

PHONE 2101

HASTINGS, MICH.

Every line of the copy radiates sincerity and truthfulness.

There is not the slightest suggestion of exaggeration anywhere in the advertisement.

It will be noticed that the text is entirely free from superlatives.

conviction. The words are plain and simple, namely "Good Implements Are Good Bargains."

This reasoning is carried out in the sentences which follow.

For instance, it is said: "Good implements and plenty of them to

Warm Air Heating and Ventilating

*Better Installations. How to Sell More Warm Air Heaters.
Reports of Progress in Warm Air Heater Research Work.
Ventilating Factories, Garages, Theaters, and Houses.*

NORRIS ANSWERS HUSSIE ON WARM AIR FURNACE CODES.

TO AMERICAN ARTISAN AND HARDWARE RECORD:

My attention has been called to an open letter published in your issue of June 11, 1921, and signed by Mr. John H. Hussie, and as I acted as Chairman of the Legislative Committee of the National Warm Air Heating & Ventilating Association I should like an opportunity briefly to state in your columns the position this committee has taken. This can best be indicated by the resolutions prepared and unanimously adopted by the Committee and by the annual convention of the Association, which resolutions follow:

"Be It Resolved,

That the National Warm Air Heating & Ventilating Association affirms its belief in the advantages of warm air heating as the most healthful system known of warming and ventilating homes and other buildings, and that the growth of the industry will materially promote health and safety in the nation;

That the National Warm Air Heating & Ventilating Association is heartily in favor of raising the standards of the industry and preventing practices which are in any way dangerous or unhealthful;

That to this end it will approve of Legislation or Codes which prohibit unsafe practices, provided such laws or codes are the results of thorough engineering research checked by practical experience; but that it is opposed to all laws or codes not thus thoroughly established; and it is opposed to all discrimination by law between different types of heaters, accessories or methods of installation, it being recognized that many variations in design and engineering of installations must exist as the result of varying experience and opinion, and that to standardize them by law would tend to check invention and progress;

That the National Warm Air Heating & Ventilating Association is earnestly in favor of raising the standards of knowledge and practice among installers of Warm Air Heaters; but that it is opposed to laws which would attempt to restrict the installation of Warm Air Heaters to those licensed by the State or Municipality, believing that such a system would prohibit many contractors of sound practical knowledge of the art, but of limited technical education, from carrying on their trade and thus tend to monopolize the industry; and that it is opposed to laws or codes which practically undertake the engineering and inspection of each installation by States or Municipalities, thus entailing large expenditures both by the public and by individuals with no proportionate gains.

That the Legislative Committee, working with Professor Willard, and proper committees of the American Society of Heating & Ventilating Engineers, National Association of Sheet Metal Contractors and other interested bodies prepare a code acceptable to all interested parties and protective of the interests of user, installer and manufacturers."

I do not agree that there is anything in these resolutions which justify Mr. Hussie's comment, that, "words are given us to conceal our thought." The resolutions seem to me to be perfectly clear cut and to say just exactly what they mean in a very simple and straightforward way.

As indicated, the National Warm Air Heating & Ventilating Association is in favor of proper legislation to promote health and safety. It will very gladly cooperate with the National Association of Sheet Metal Contractors toward formulating a proper code for these purposes and I am very much pleased to learn that at

the Pittsburgh Convention this splendid Association has voted to work with us on the subject.

We have also requested the cooperation of the American Society of Heating & Ventilating Engineers, as it seems to us most fitting that this representative and important engineering society should have a part in this big work, both on account of their advice on engineering problems and on account of the prestige that would be added to any code having their approval.

It goes without saying that we need Professor Willard's help on this subject. The remarkable research work conducted under his charge at the University of Illinois has done more to advance the cause of Warm Air Heating than can be fully understood at this time. Much of the information brought out by this research work will become available in very practical form during the next few months, and it would be most unfortunate to adopt a code which did not take advantage of this most important information.

The program of the National Warm Air Heating & Ventilating Association is constructive and positive. It implies, however, that the Association will exert its utmost influence to defeat any proposed measures which have been hurriedly and carelessly drawn, or measures drawn for the benefit of any special interest or class. This country has had too much of both of these kinds of laws and it is time to stop and consider what sort of laws we are advocating before throwing out influence in their favor. It is not always easy to get bad laws amended or repealed. There is no reason why intelligent and sincere efforts by the various bodies interested can not produce a code which will be fair and acceptable to everyone, and will work for the protection of the public and at the same time for the upbuilding of the industry.

In Mr. Hussie's letter he has unfortunately seen fit to impugn the motives of the furnace manufacturers. This is entirely unjustified, as anyone familiar with the membership of the National Warm Air Heating & Ventilating Association will know. There is no body of men who are more earnestly and sincerely interested in building up and improving warm air heating. The Association will earnestly and consistently work to that end and will hope for the cooperation of all the Sheet Metal Contractors of the country, as we believe that our interests are identical, and that laws that are good for the manufacturers are also good for the contractor.

Very truly yours,

EDWARD NORRIS,

Utica Heater Company.

Utica, New York, June 23, 1921.

It is not the place nor the condition, but the mind alone, that can make one happy or miserable.—
L'Estrange.

Experts of the United States Bureau of Standards Make Comparative Tests of 16-Inch Roof Ventilators.

Their Experiments Were Restricted to a Study of the Two Most Important Factors Affecting the Performance of a Ventilator.

It is generally conceded that the United States Bureau of Standards, Washington, D. C., is at once the most practical and scientific institution of its kind in the world.

Consequently, full confidence can be placed in the findings of its experiments.

For that reason, unusual importance attaches to the subjoined article by H. L. Dryden, W. F. Stutz, and R. H. Heald of the United States Bureau of Standards.

It gives the results of some comparative tests of 16-inch roof ventilators, and is reproduced from the Journal of the American Society of Heating and Ventilating Engineers:

During the summer of 1920 a study of some fifty 16-inch ventilators was made at the Bureau of Standards, the ventilators having been submitted by the Construction Division, Q. M. Corps, of the Army. The following paper gives a brief summary of some of the results of the study.

The factors affecting the performance of a ventilator and the things which must be taken into consideration in the choice of a ventilator are so numerous that it was impossible to attempt a complete study. We limited ourselves definitely to certain specific phases of the problem and it must be kept in mind that the tests about to be described are particular tests with a certain experimental arrangement. The question as to how far the results of these tests apply to any other arrangement is left open.

Our experiments were confined to questions concerning the volume of air exhausted per minute by the ventilators, which is dependent upon many factors. For example, if the air does not have free access to the room, little air will be exhausted. If there are obstructions near the ventilator, the performance will be affected.

The most important factors, however, affecting the performance of a ventilator are (1) the difference in temperature between the air in the room and the air outside and (2) the speed of the wind blowing across the top of the ventilator. Our experiments were restricted to these two factors.

The effect of a temperature difference is to produce the familiar chimney action, an action common to all ventilators, including an open pipe.

The design of the ventilator affects the amount of air exhausted under a given temperature difference only insofar as more or less resistance is offered to the flow of air.

If the ventilator passage is obstructed, less air will be exhausted. From this standpoint, a straight open vertical pipe is the ideal ventilator, but considerations of weatherproofness prohibit its use.

The exhaust due to the wind depends primarily upon the design of the ventilator. Our first experiments were arranged so that the temperature at the entrance

and exhaust were the same, so that there was no chimney action.

The wind was produced by one of the wind tunnels of the Bureau of Standards. For the purpose of these tests the exhaust fan of the tunnel was removed and a blower fan substituted. By means of suitable honeycombs the velocity was made as nearly uniform as possible across the stream.

The ventilators were placed in front of the mouth of the tunnel on the end of a vertical pipe, the wind stream being horizontal. A horizontal pipe containing the measuring apparatus was joined to this vertical pipe by means of an elbow.

The speed of the wind was obtained from the readings of a tachometer connected to the shaft of the wind tunnel motor, the readings of the tachometer having been previously standardized in terms of an anemometer placed in the position later occupied by the ventilators.

The volume of air exhausted was obtained from the deflections of a small wire suspended freely in the horizontal pipe from a watch-bearing mounting. The wire anemometer was calibrated by comparison with an orifice meter.

Measurements were made of the volume of air exhausted per minute by the ventilators at wind speeds of 4, 8 and 12 miles per hour. For comparison, index numbers or wind ratings were obtained by expressing the volume exhausted by a ventilator as a percentage of the volume exhausted through the open pipe in the same time at the same wind speed.

The wind rating of the open pipe is therefore 100 at all wind speeds. The accuracy of the measurements is about 5 per cent, and smaller differences in ratings are of no significance.

Some ventilators exhaust less air than an open pipe, some more; the best ventilators have a rating of 150, the exhaust being one and one-half times as much as from an open pipe. The exhaust of an open pipe with the set-up used was about 250 cubic feet per minute for a wind speed of 10 miles per hour.

In addition to the measurements of the volume of air exhausted at varying wind speeds with no temperature difference, measurements were made of the flow of air through the ventilators with a given difference in pressure in order to simulate the effect of a difference in temperature between the air of a room and the air outside.

An electric fan was placed at the entrance of the ventilator pipe line and the volume of air per minute passing through the pipe was measured at various speeds of the fan.

It is evident that if the fan is running at a uniform speed and the same flow is obtained with two different ventilators, the resistances of the two ventilators are equal and consequently under a given temperature

difference the same volume of air per minute would be exhausted by the two ventilators.

If the flow through one ventilator is less, its resistance is greater and it would exhaust less air under the same temperature difference. Ratings were again made

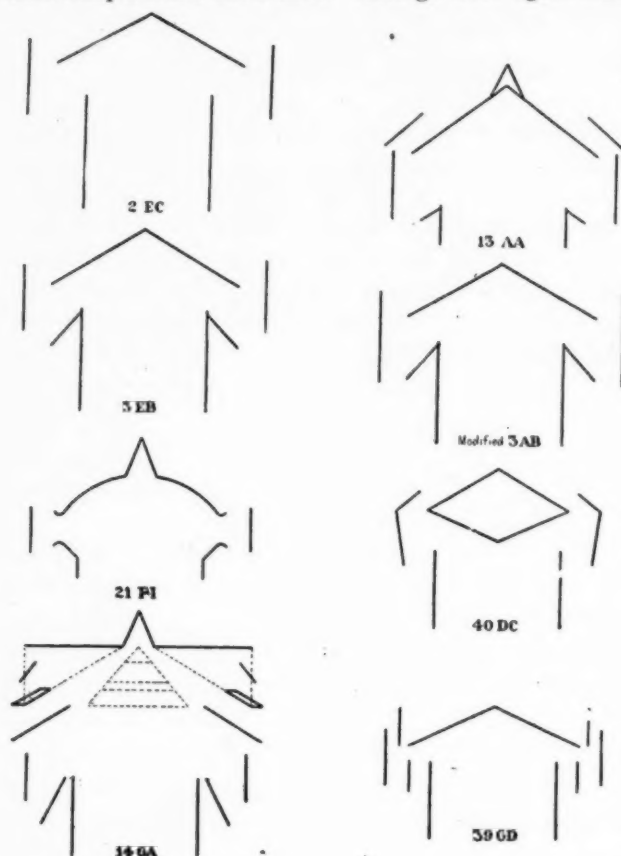


FIG. 3. SPECIMEN TYPES OF VENTILATORS TESTED.

on the basis of the open pipe as 100. In these resistance ratings, 100 is the maximum attainable, since the resistance of the ventilator is added to that of the pipe.

Ventilators may readily be divided into those of stationary and rotary forms, but any further sub-division for purposes of discussion is difficult.

The simplest type of ventilator consists of a cap over the top of an open pipe with a band around pipe and cap to keep the rain from beating in. Such a ventilator exhausted 91 per cent as much air as an open pipe at the same wind velocity. In other words, it has a wind rating of 94. It permitted 86 per cent as much air to pass as an open pipe in the second experiment. This will be expressed by saying that the *resistance* rating is 86.

A simple modification of Number 2 is shown in ventilator Number 3EB (Figure 3) where a lip is placed on the pipe. This ventilator is very sensitive as regards its orientation relative to the wind. On introducing a smoke stream it was found that the air passing under the band separates into two parts, one part passing under the cap and diagonally out at the sides of the ventilator, the other passing underneath the lip and around the pipe.

The quantity of air going by the two routes depends on the orientation of the ventilator relative to the air stream. The results varied by about 10 per cent in different experiments, according to the orientation. This ventilator had a wind rating of 96 and a resistance rating of 88.

To investigate more fully the effect of the band, the

band was lengthened as shown in modified Number 3AB (Figure 3) so as to extend a little below the lip. The wind rating increased from 96 to 130 and on an examination with a smoke stream it was found that no air entered the ventilator at all.

The air blowing on the ventilator passed underneath the lip, the ventilator exhausting all the way around. Ventilator Number 13AA (Figure 3), of somewhat similar construction, but of different proportions, had a wind rating 138 and a resistance rating 95.

Figures 3 and 4 show other modifications, some complicated and some simple. Number 21FI illustrates the effect of making the openings in the ventilator too small for the air to pass out freely. Its resistance rating was 56, its wind rating 85.

Number 14GA illustrates a very complicated construction of low resistance, resistance rating 100, wind rating 73.

Number 39GD is another complicated one, resistance rating 75, wind rating 77. In the case of Number 29ED, extending the band below the lip increased the wind rating from 91 to 113. Its resistance rating was 78.

Number 48CB is better than the simple types Number 2EC and Number 3EB, but not as good as modified Number 3AB, its wind rating being 109 and its resistance rating 93.

Number 27FJ is another ventilator with small exit

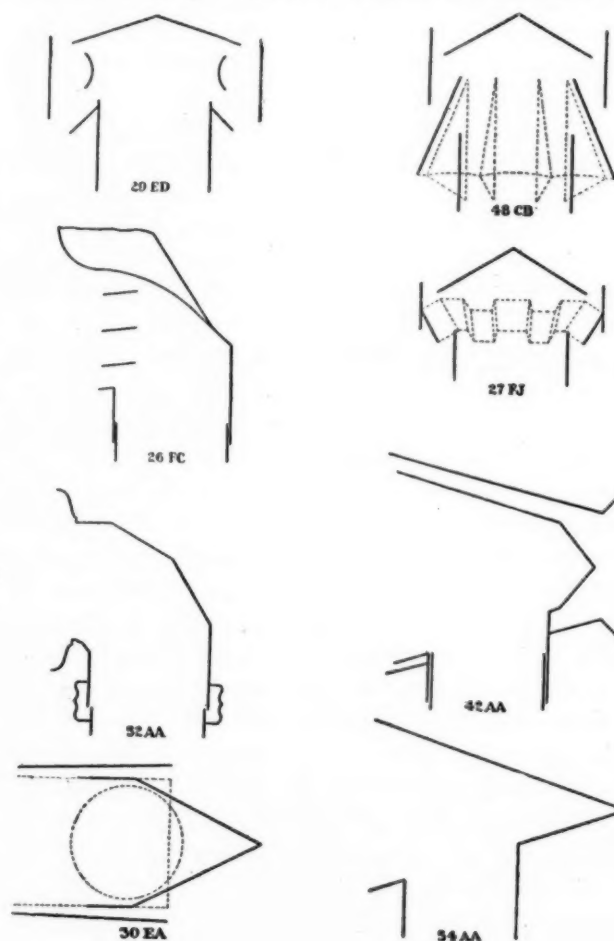


FIG. 4. SPECIMEN TYPES OF VENTILATORS TESTED.

passage for the air, its resistance rating being 50 and its wind rating 80.

These ventilators are typical of the stationary ones and the surprising fact is that the best exhaust is obtained with a very simple construction.

Number 26FC (Figure 4) is a simple type of rotary ventilator consisting of an elbow with a wind vane to hold the opening away from the wind. Its wind rating was 87, resistance rating 83. Its resistance rating is low because of some large damper supports in the pipe which are not shown in the sketch.

Number 52AA differs from Number 26FC in that the pipe is free from obstruction and the air is deflected outward by means of a lip on the elbow. Its wind rating was 150, its resistance rating 95.

Number 30EA is another type in which air is permitted to pass through a passage in the ventilator. Its wind rating was 91. On stopping up the passage, the wind rating was increased to 135, so that the passage way is detrimental to the performance of this particular ventilator.

Number 42AA also has a passageway for the air. Stopping up the passage had no effect on the wind rating, the rating remaining 149.

As a result of this observation we designed the simple form Number 54AA. This cone type had a wind rating 149, the same as Number 42.

In conclusion, two points should be emphasized. The first is that no general statement can be made as to the relative merits of rotary and stationary, or mushroom and siphon, ventilators.

The performance depends on the particular models. It is possible to build a good stationary ventilator as well as a good rotary ventilator, and there are poor ventilators of each type.

The second point is that the most effective way of obtaining a large volume of air exhaust is by making use of the region of low pressure produced at the back of a properly designed obstacle. It is best not to allow the air to enter the ventilator for it must then be exhausted and will be exhausted at the expense of the air in the ventilator pipe.

The detailed results of the investigation are being prepared for publication by the Bureau of Standards as a technologic paper. We desire to acknowledge the efficient assistance of Messrs. R. D. Campbell and M. Temin in connection with the tests.

Tuttle & Bailey Establish Loop Office in Chicago.

The Tuttle & Bailey Manufacturing Company, manufacturers of the well known T. & B. warm air registers and grilles, have established a downtown office in Chicago, in addition to their general offices at 1123 West 37th Street.

The new office which is located in the Builders' Material Exhibit, in the Leiter Building, Southeast corner of State and Van Buren Streets, is under the charge of W. S. Gordon.

Warm Air Furnace Dealer Uses Window Display to Sell Goods.

Knowing that the best way to promote the sale of goods is to show them to the people, Mr. Liniger, manager furnace department, Hartford Hardware Company, Hartford City, Indiana, makes effective use of window displays to sell warm air furnaces.

He has a window decorator come to his place of

business every two weeks and make a complete change of the goods on exhibit.

The accompanying illustration gives an idea of the



Window Display of Warm Air Furnaces.

arrangement and liberal use of placards of one of the many warm air furnace displays.

It will be noted that Mr. Liniger is wise enough to take advantage of the advertising helps supplied by the Majestic Manufacturing Company, Huntington, Indiana, makers of the warm air furnace shown in the window exhibit.

Satisfactory results in the form of actual sales invariably follow these warm air furnace window displays.

Rock Island Register Catalog Is Valuable Book of Reference.

Illustrated in such a way as to give clear and precise ideas of the appearance, structure, and use of its products, the No. 7 catalog of Rock Island Guaranteed Wall Registers issued by the Rock Island Register Company, Rock Island, Illinois, is a valuable book of reference.

The installer who seeks to please his customer by attractive wall registers and who desires to employ materials giving a high degree of service will find this new catalog full of helpful suggestions.

In addition to wall registers and cold air faces, the catalog illustrates and gives the prices of various warm air furnace supplies such as the "Handy" furnace pipe, furnace regulators, pulleys, asbestos pipe covering, humidifiers, and the like.

Copies of this new catalog can be had by applying to Rock Island Register Company, 2435 Fifth Avenue, Rock Island, Illinois.

Registers Furnace Trade-Mark in Patent Office.

The Williamson Heater Company, Cincinnati, Ohio, have been granted United States Patent Office registration, under number 138,795,

HOMAKER
138,795.

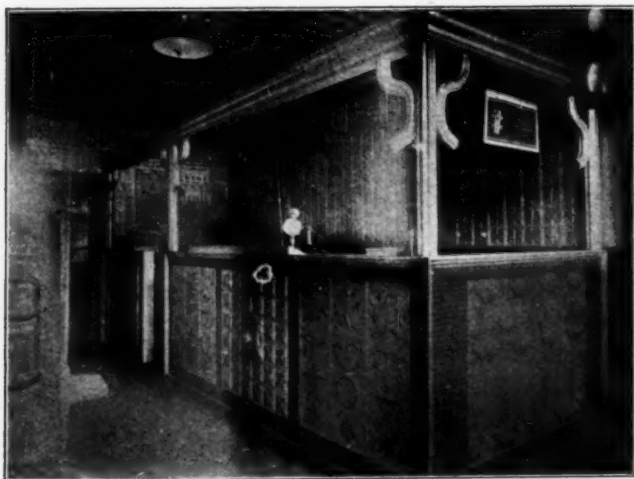
for the trade-mark depicted herewith. The particular description of goods to which it

applies is coal, gas, and wood furnaces. The Company claims use of this trade-mark since September 11, 1920.

Don't think that the man who is always on the run wins the most of life's races.

Unique Idea Is Carried Out for Office of Indiana Sheet Metal Contractor.

It will be remembered that the Exhibition Hall of the Indiana Sheet Metal Contractors' Association during their Annual Convention was decorated in a very unique and attractive manner with various products of sheet metal. A view of a portion of the hall was published in our issue of February 12th, on page 45.



View of Office and Salesroom of Rolland & Beach, Richmond, Indiana.

As will be noted from the accompanying illustration, the firm of Rolland & Beach, Richmond, Indiana, has carried out the same idea very effectively in the arrangement of their new office.

Here we have a real sheet metal salesroom and office. The walls and ceilings are covered with handsome metal ceiling plates. The office is partitioned off with panels of the same material, showing the various patterns and designs in pleasing manner. The up-rights are of corrugated downspouts, ornamented with elbows for same, and at the top there is neat effect of cornice and gutter work.

To the right in the picture, there is a "Front Rank" warm air furnace, and a handsome advertising sign of this well known apparatus is suspended on the right.

Even the calendar on the wall in the rear fits into the scheme, for it shows various types of Lamneck Simplified warm air furnace fittings.

States Conditions Best Suited to Pipeless Warm Air Heater.

In the circular-prepared for mailing to prospective customers of its dealers by the Haynes-Langenberg Manufacturing Company, St. Louis, Missouri, the conditions best suited to efficient service of pipeless warm air heaters are clearly set forth as follows:

There has been so much said about the pipeless furnace, both pro and con, that we are taking this opportunity to describe it to you.

One furnace man will tell you that it is the best system for heating on the market, while another will declare most emphatically that it is no good and never will be. We are going to tell you that it is the best in some cases and the poorest in others.

Like many other articles, the pipeless furnace is designed for particular purposes, and when applied to

the purpose for which it is intended, it is satisfactory in every respect.

How it Operates.

What you are interested in most is, will it heat your home? Our immediate answer is, it will if your home is so built and arranged that the pipeless furnace will be able to perform all the duties for which it is intended. So we want you to know how the pipeless furnace works, and where it works best.

In the first place, the principle of pipeless heating is not new. Its present appearance is new, but it is nothing more than a development of the warm air furnace used to heat churches, stores and other buildings, the interiors of which are open.

The pipeless furnace heats by circulating warm air throughout the building, just as the pipe furnace does, except that where the latter has a pipe for each room, the pipeless furnace has but one pipe leading to but one room. And instead of a separate cold-air register with a pipe leading back to the heater, it has an outer or cold-air casing surrounding the inner or warm air casing, and the outer portion of the one register is used as a cold air return.

How then, is such a furnace going to heat a house having eight or ten rooms? Just as the center and far parts of a room are heated by a register set near the inner wall—by circulation of heated air from room to room, the warm air going out from the furnace at the same time cold air is coming in to it.

Where It Can Be Used.

Houses heated with the pipeless furnaces must have open interiors so that the air can circulate freely from room to room. For example, the house should be about square, and compactly built. The ceilings should be low and the doors wide, or there should be transoms or ventilators near the ceilings and over the doors. If a two-story house, there should be open stairways, or registers connecting the lower and upper rooms. There must be enough openings to permit free circulation of air.

In general then, if you have a home built like the modern one story or story-and-a-half bungalow, and are willing to leave the doors from room to room open, the pipeless furnace will give you satisfaction, in fact you will get all the benefits of the pipe furnace at a lower cost.

Advantages of the Pipeless Furnace.

The pipeless furnace has many advantages over the pipe furnace. It has but one large pipe, which results in a minimum loss of heat between the basement and the rooms. Basements are kept cool but not too cool, and there is not the maze of pipes around the basement ceiling that you so frequently find where pipe furnaces are used.

The pipeless furnace is much easier and cheaper to install. One good workman can usually complete the job in a day, while it often requires a week to put in the other.

Because of the one, short-lengthed pipe, the warm air reaches the rooms quicker than it does with the pipe furnace. It takes less fuel to start the heat circulating. And you haven't the bother or expense of wrapping the basement pipes to conserve the heat.

If used rightly, the pipeless furnace is always economical and satisfactory.

Practical Helps for Tinsmiths

No Two Jobs Are Exactly Alike. Therefore, the Sheet Metal Worker Has to Meet Each Difficulty as It Comes. Send Your Problems to Us. Let Our Experts Help You.

PATTERN FOR SHEET METAL ROW BOAT.

By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri. Written especially for American Artisan and Hardware Record.

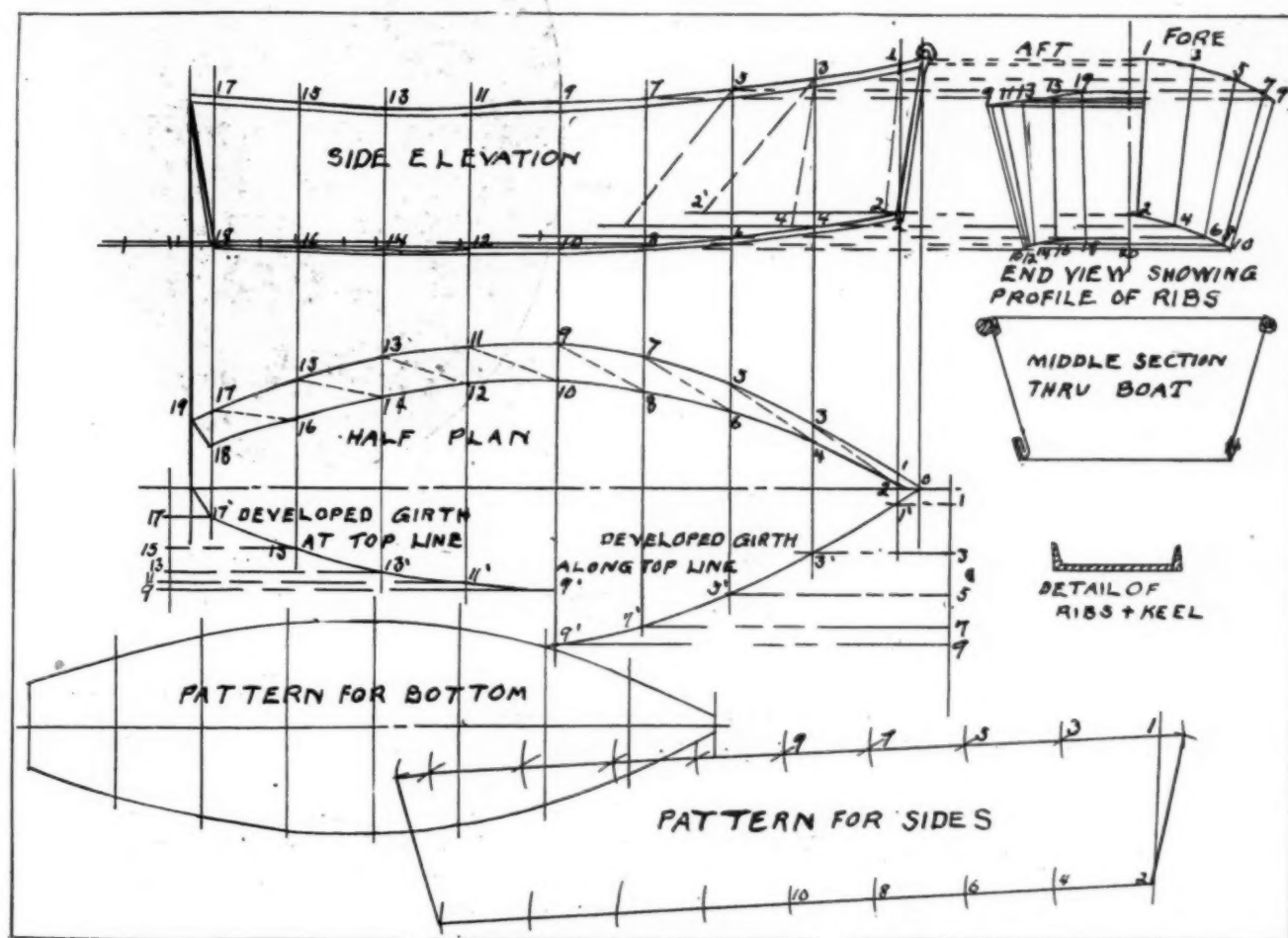
In this drawing we take on another design of boat. It is of a more common and simple way to make than the more curved types.

But this gives us the outline of sides also the flare the sides will have.

We next develop the end view to get exact lines as profiles through the lines of side elevation.

To do this, draw a vertical center line, and from each point as 1-3-4-7-9, etc., in top rail, and also 2-4-6-8, etc., on bottom, project over lines into end view.

With dividers pick the half breadth spaces from



Pattern for Sheet Metal Row Boat.

We here merely show the shell development, the workman can set the trimmings as he chooses.

First draw the side elevation giving the desired curvature of top and bottom.

This is sketched in at pleasure or what has been found good practice by other boats. Next divide the length in equal spaces as 2-18. Drop lines indefinitely as shown. Next draw a center line for half plan.

Measure the half breadth of top rail, and also the bottom. Then trace the plan line for bottom as shown.

All of this is more guess work. Experience soon dictates the exact lines they ought to take.

half plan and set over on center line.

This gives points 1-3-5-7-9, also 9-11-13-15-17, also 2-4-6-8-10, and 10-12-14-16-18. This enables drawing the slant lines in end view and represent the profiles to bend the channel bar ribs too.

To set out the pattern for bottom, pick the curved girth from side elevation and set off on a straight line.

Draw stretchout lines and then pick the half breadths from plan and set them off on each side of center line of pattern. This gives the points for tracing the outline of bottom.

Observe how this takes in the length of bottom, and the outline in pattern for bottom will serve as

girth for the lower edge in pattern for sides.

Before going farther, we must determine the developed girth along the top rail.

With dividers pick the curved spaces as 1-3-5-7-9 from fore end of end view, and set them on a vertical line below half plan as 1-9.

Then project horizontal lines to intersect vertical lines of similar number as in points 1'-3'-5'-7'-9'. This is the true girth along gunwale of elevation.

In the same way pick the spaces as 9-11-13-15-17 from end view, and set as 17-9 from center line of plan.

Project horizontal lines, and you establish points 17'-15'-13'-11'-9'; which is the girth on the aft end of gunwale edge of elevation.

True lengths are next developed by picking the dotted lines from plan as 2-3; 4-5; 6-7, etc., and setting them over on the base lines squared out from points 2-4-6, etc., of elevation.

This is in accordance with all triangulation work.

All solid lines, as 1-2; 3-4; 5-6, etc., are taken direct from end view as these are true lengths.

So start the pattern for sides the same as all triangulation fittings, and continue with the development until finished.

The sides can be riveted or seamed as in middle section through boat. The keel is a piece of channel bar riveted along the bow and stern and bottom.

Flint and Saginaw Locals Join in Jolly Michigan Outing.

On Saturday afternoon, June 25, members of the Flint and Saginaw Sheet Metal Contractors' Associations with their families met at the Frankenmuth for an outing. One of the objects of this affair was to choose a baseball team to represent these two cities at the Michigan Sheet Metal Contractors' Outing in Grand Rapids, July 29 and 30.

In order to see all players in action a game was played between Saginaw and Flint in which the latter was victorious by a score of seven to six. The indicator was held by Frank E. Ederle, Secretary Michigan Sheet Metal Contractors' Association.

The game was strictly high class—much better than would naturally be expected from sheet metal contractors.

At the close of the game Albert Klopff had the privilege of selecting players from Lansing and Bay City also. It is quite certain he will have a strong team.

The party then returned to Fisher's Hotel for a chicken dinner—and it was some dinner! The sixty-eight present all agreed that it surpassed any meal ever offered them.

If there had been any prize to the person eating the most chicken, Mrs. Ederle would have won easily—in the opinion of her husband, State Secretary of the Michigan Association.

Isaac Stearns Passes Into the Great Beyond.

Time is relative. Measured by the number of years of his existence, Isaac Stearns, President Michigan

Safety Furnace Pipe Company, Detroit, Michigan, lived a dozen average lives in the sixty years which came to an end with his passing into the Great Beyond, Monday, June 27, 1921, at his home in Detroit.

To timid folk who shrink from the difficulties which beset the path to success, the story of his achievements is tonic and encouraging. At the outset, he had none of the advantages of inherited wealth and social influence. He had to earn everything that he gained in the struggle for success.

He brought to bear upon the tasks of life an indomitable courage, a fine sense of human fellowship,



Isaac Stearns.

unflagging ambition, and a kindliness of spirit which no hardship or opposition was ever able to weaken or destroy.

Thus his accomplishments are a legacy of inspiration to men of every age who falter in the face of obstacles remaining to be overcome.

Isaac Stearns was born June 28, 1861, in Cleveland, Ohio. At the age of seventeen years he entered the tinshop of the Richardson and Boynton Company, Chicago, where he worked for ten years, acquiring a comprehensive knowledge of the trade.

In 1889 with his brother Sam, he opened a retail furnace business in Detroit, under the name of Stearns Brothers.

As a result of study and observation, he invented and began the manufacture of a double wall furnace pipe in 1898. For that purpose he organized the Michigan Safety Furnace Pipe Company. Later he made improvements on his own invention.

In 1916 he organized the Stearns Register Company of which his son, Joseph Allen Stearns, is General Manager.

Isaac Stearns was remarkably free from any form of narrowmindedness. He made friends among people of all types. He was generous, genial, and good-natured—always ready to encourage ambition in others.

He is survived by his wife, Carlotta Bonheur Stearns, a daughter, Mrs. Alys Stearns Mitchell, and a son, Joseph Allen Stearns.

What You Read or Hear Helps You in Business only to the Degree in Which You Mentally Digest It.

It Is Important, Therefore, to Choose the Best and Concentrate Your Mind upon the Kind of Knowledge Which Will Aid You Most.

Written Especially for AMERICAN ARTISAN AND HARDWARE RECORD by J. C. Greenberg, Peoria, Illinois.

(Copyright, 1921, by J. C. Greenberg.)

Suppose I were to tell you that education was a matter of digestion what would you say? Well, I am going to say it, and see what you will say.

First, let us see what "digest" means, and then let us wade in and get some good out of it.

Webster's dictionary says that digest means to "take into the physical or mental system. Mental assimilation."

Therefore, it refers to it as an act of the brain as well as the stomach. Bear this in mind please. It feels good to know the truth about it.

Men are not big in body because they eat a lot of food. The body develops only in accordance with the amount of food that is digested.

When food is not digested, it is called indigestion.

Now then, let us reason along a little further and see what we can discover. Take for instance education. What really is it? It is not learning as we think it is. Education as defined by Webster is, "The systematic development and cultivation of the natural powers."

There you have it. Education is development. It is growth. How does the brain grow? It grows by development. Now then, get this please. We may read a lot, but digest very little.

If this is the case, the reader has mental indigestion. If one reads, and hears a lot, and does not know the things he hears and reads, he is taking in a lot, but not digesting it. Therefore, that person has brain indigestion.

You may laugh at this if you will, but my advice is for you not to laugh, but rather to learn how to avoid these diseases of the brain.

We are here dealing with Natural law, and unless we obey the law it will be our own hard luck. Please understand me. I do not infer that all sheet metal men are fools. You all know me better than that. I am merely talking to that man who needs this talk. Do you get me? In the first place, you must read so you will have something for your brain to do. If you do

not read, you simply starve the brain. Work is an agency of brain development. So then whatever you do, read a lot about your business. Don't waste time reading that which you can not use in your everyday life.

Second, hear a lot. Go where people talk and exchange ideas. See what is in the minds of other men. Take into your brain something that will pass out in action and in good. Your association meetings are fine places to learn ideas and opinions.

In order to educate the brain in useful things, we must first impress the brain. As we digest the impressions, we express them clearly and do not have to guess at it. To be plain, you can not take out of your head what you do not know, no matter how much you read or hear. You must digest it before you can use it.

Now then, I suppose you want to know how to get the brain to digest the mental food you put into your head. Here is how it works out.

Suppose you read an article, this article for instance. Just read it once, lay the paper down, and ask yourself:

"What do I know about this article? What does the writer mean? What of it?"

If you can answer these questions, you will be able to tell someone else all about it. If you can do this, you have digested brain food. If you read it, but can not tell about it in full, then you have brain indigestion and need to change your habits of thinking.

Knowledge is no good unless you can use it. Anything that you know but can not use is an overhead expense to your brain, and is equal to non-productive labor. You pay for it but get nothing out of it.

Get the habit of knowing only useful things. Utility knowledge, it is called. When you know the things you need to know, and can use the things you know, then and then only are you a useful man in the business. Begin now to study your business.

Literally there are millions of sounds on all sides of you, even in the quietest surroundings.

But you hear only a small fraction of them. The remainder do not reach the foreground of your consciousness.

It is the same with words and ideas. You read thousands of words every day in your newspaper. But you probably do not remember a dozen out of the entire number at the end of the day.

We can assimilate only a certain amount of food whether it be physical or intellectual. That is why instinctively we read carefully only those parts of the news which interest us.

Applied to business the lesson of these facts is not to waste time on non-essentials but to pick out and digest mentally that which will be of biggest advantage to us.

Tackle the things you know the least about, because these are the things you need first. If you are poor at figuring overhead, tackle this first. In fact, there are a lot of things we sheet metal men need to know.

For instance, these are things to know about, overhead, cost, selling, figuring, estimating, bookkeeping, advertising, window trimming, show room display, letter writing, financing, use of the bank, Duns, Bradstreet, and a slew of other things. I have enumerated only fourteen things, but there are fourteen hundred, I guess.

The body assimilates food and distributes the nourishment to the body in the formation of cells. So does the brain assimilate knowledge and distributes the digested facts in the proper classification so that the brain cells shall grow. The better the brain, the better the business man.

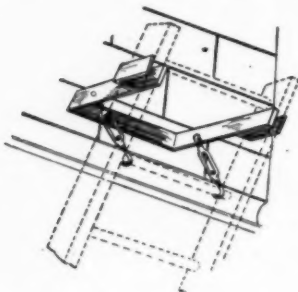
The reason a cow is a cow is because it digests only with its stomach, but not with its brain. This is why a cow grows large, and is not a diplomat.

We as business men, better give the digestive powers of the brain something to work upon or we won't be as good as a cow, because a cow at least can give milk and beef.

Now what do you say?

Ladder Support Saves Time and Prevents Accidents.

Nothing eats up the profit of a job more than a lengthening of the labor-time required to perform the work.



The Havens Ladder Support.

Every device, therefore, which reduces labor-time increases the margin of profit.

In hanging eaves trough much costly labor is expended in handling ladders and in moving them from place to place along the edge of the roof.

Moreover, a considerable percentage of accidents is a feature of handling ladders in the old-fashioned way. This, of course, delays the work and lessens the profit.

From the angle of profit, therefore, the Haven's Ladder Support, shown in the accompanying illustration, commends itself to the thrifty sheet metal contractor.

This ladder support is said to hold the ladder firmly, yet entirely out of the workman's way. It does not touch the side of the house or the eaves trough. It is securely held in place and can not be shaken off.

Any job of eaves trough hanging can be speeded up by using two ladders with these supports, so that a man and helper can pick up a length of eaves trough 25 to 40 feet long, carry it up between the ladders and place it in position in much less time than by the old method.

The Havens ladder support is manufactured by The Wellman Supply Company, 447 Belmont Avenue, Springfield, Massachusetts, to whom all orders and inquiries should be directed.

Detroit Sheet Metal Contractors Enjoy a Day's Diversion.

The outing of the Detroit, Michigan, Sheet Metal Contractors' Association, which was planned for Monday afternoon, June 27, was a decided success in everything except the weather. Rain prevented a ball game which was to have been one of the big features.

However, a hand ball game was played and at this game players were looked over as to their ability to play on the team which represents Detroit at the State outing in Grand Rapids, July 29 and 30.

After the game seventy members sat down to a chicken and frog dinner at Otto Hucks Westwood Inn.

The meal was beyond description. Everything was fine and plenty of it.

N. L. Pierson, Jr., President of the Salesman's Auxiliary, and Frank E. Ederle, Secretary Michigan Sheet Metal Contractors' Association, were present.

Much of the success of the outing was due to the energy and enthusiasm of the committee in charge, consisting of R. C. Mahon, J. Stewart, and Charles Marble.

This outing is the first of a series of similar events to be given by the Detroit Association. At the next one it is planned to take the ladies.

Produces a Low Priced Alcohol Torch.

For some time there has been a demand for a cheaper alcohol torch than those already on the market. Due to this demand Otto Bernz Company, of Newark, New Jersey, is now manufacturing the No. 12 "Always Reliable" alcohol torch shown in the illustration herewith. Although this torch is much lower in price, it will answer the same purposes as the other styles.



New Otto Bernz Company Alcohol Torch.

The No. 12 torch is made from a brass tube measuring .032 inch thick, and is heavily nickel plated. The bottom of the tube is solid which enables the user to carry the torch without danger of leaking. The cap at the top fits snugly which prevents evaporation of alcohol when torch is not in use. The air tube can be adjusted to suit work to be done. Each torch is furnished with a rubber tube and mouth piece as shown in illustration.

The reservoir is filled by removing the felt with wick. A chain is attached to the felt which allows the user to remove the wick quickly, thereby preventing any loss of time.

A fine pointed flame is produced which is suitable for jewelers' and electricians' use, or for any purpose whatsoever when a small flame is required.

The complete torch measures 4 5/8 inches long by 3/8 inches diameter; just small enough to place in your pocket.

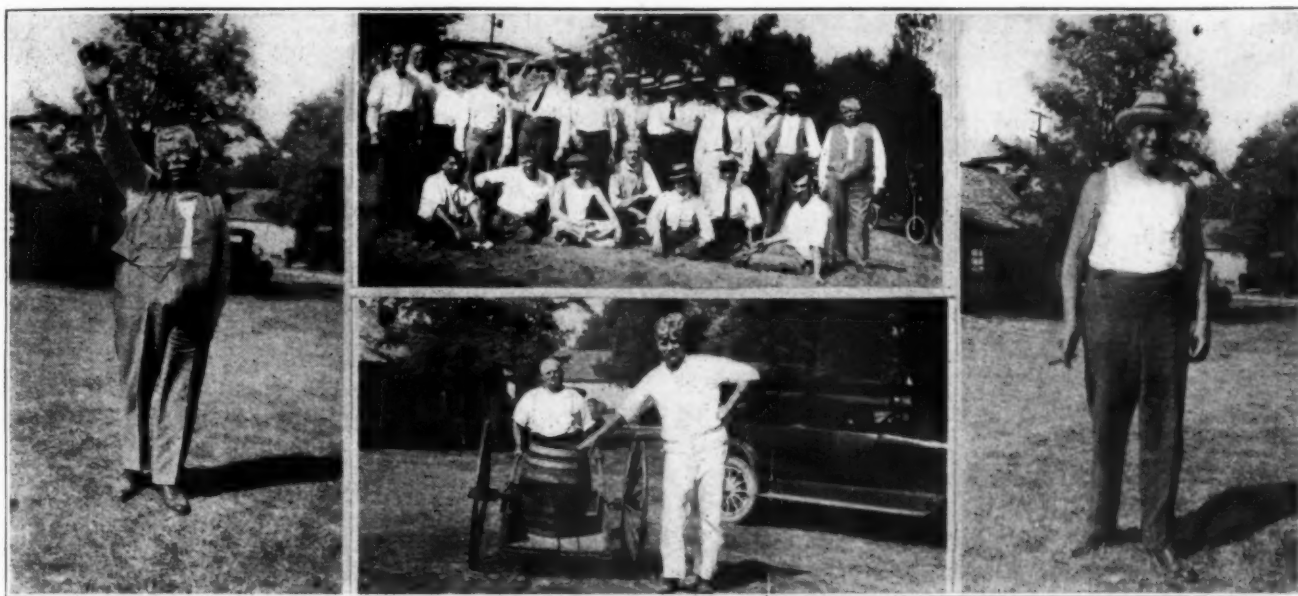
Each torch is manufactured from the best materials obtainable and by skilled workmen; therefore, is fully guaranteed by the makers. Each torch is packed in a cardboard box and furnished with complete directions. For further information readers should write to Otto Bernz Company, Newark, New Jersey.

Chicago Sheet Metal Contractors Partake of Milwaukee Hospitality.

One of the most notable events in the annals of the Milwaukee Sheet Metal Contractors' Association, one that further cemented the ties of friendship and good fellowship between Chicago and Milwaukee was a visit of a delegation of twenty-four members of the Chicago Local in response to an invitation extended by the Milwaukee Local to the Chicago Association to attend the Annual Picnic and Outing, held at Knebel's Grove, Green Bay Road, Mequon, Wisconsin, Wednesday, June 22, 1921.

The Milwaukee Local was represented by almost its entire membership at this affair, and the Chicago delegation consisted of the following members:

John Melice, of Friedley-Voshardt Company.
H. F. Bremer.
William Lengacher.
H. J. Dettmers, of Farwell Cornice Company.
K. Hirsch.
Peter Biegler, of Louis Biegler Company.
Louis S. Rysdon, of Louis S. Rysdon Company.
A. J. Wagner, of Wagner Brothers.
Owen Williams, of Griffith Cornice Works.
Eli A. Rysdon, of E. A. Rysdon Company.
Peter Schmitz.
E. Bloomer of Bloomer Heating & Ventilating Company.
Rudolph Wursig.



Group Picture of Chicago Delegation at Annual Picnic of Milwaukee Sheet Metal Contractors' Association. Other Notables.

The Chicago visitors came to Milwaukee in a special chartered car via the North Shore Route and upon their arrival were taken in charge by the Milwaukee Reception Committee, consisting of Messrs. Bogenberger, Tonnsen, Green, Hoffmann, in their automobiles and after showing them the sights of the "Bright Spot City," directed them to the picnic grounds where they were taken in tow by the Picnic Committee, Messrs. Hammann, Jeske and Eschenburg, who had arranged and provided for everything required for an occasion of that kind.

A splendid dinner with the necessary soft drinks, was served which all enjoyed to their hearts' content. A good sized book could be filled relating as to what transpired but suffice to say that the baseball game arranged between Milwaukee and Chicago resulted in Chicago being "Chicagooed," but Committeeman Eschenburg consoled them after the game with an excellent repast of fried sausages, which only he can serve to such a nicety.

The alert Picnic Committee kept all those present continually on edge and it was with regret when Marshall H. J. Dettmers summoned, by a bugler, his herd around him and announced that the hour for departure had arrived.

The picnic would not have been a success had not the picnic photographer, John Bogenberger, taken various groups with his reliable camera, such as are illustrated herewith.

Fred S. Bremer.
L. A. Ruda, of L. A. Ruda Company.
J. H. Perkinson, of Perkinson & Brown.
Jos. H. Rawley, of Sykes Company.
Thomas P. Shean, of Shean Steel Window Company.
Robert Heidt, of Knisely Brothers.
J. T. Dilley, of Dilley & Company.
Robert G. Evans, of Central Heating Supply Company.
Joseph Meersman, with William Lengacher.
W. W. Rockwood, of Robert Gordon, Incorporated.
A. Friedley, of Friedley-Voshardt Company.

Produces New Design for Metal Ceiling.

One of the best ways to further the interests of trade development and enlarge the business of the individual

sheet metal contractor is to show the public the artistic advantages as well as the practical value of metal ceiling.

In every contractor's territory there is remodeling to be done. Restaurants, stores, lodge halls, and other buildings, can be equipped



New Friedley-Voshardt Metal Ceiling Design.

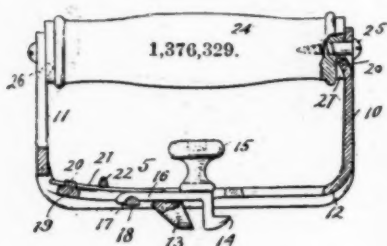
with metal ceiling and walls at a saving in upkeep which is beyond question.

This is a lucrative business which can be developed by any sheet metal contractor who takes the trouble to use the opportunities at hand.

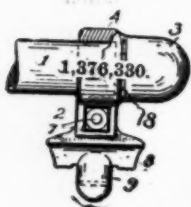
Some idea of the artistic possibilities of metal ceiling can be had from the accompanying illustration of the latest design of metal ceiling made by Friedley-Voshardt Company, 733-737 South Halsted Street, Chicago, Illinois. Molding and cornice to match this design are also manufactured by the same company.

Patents Sad Iron Holder and Combined Rod and Ornament.

Under numbers 1,376,329 and 1,376,330, United States patent rights have been granted to Samuel H. Gibson, Cleveland, Ohio, assignor The Fanner Manufacturing Company, Cleveland, Ohio, a Corporation of Ohio, for a sadiron holder and combined rod and ornament described in the following paragraphs:



A holder for sad-irons comprising a U-shaped frame having a hand engaging portion, the base of said frame having a cross member provided with a lug, a yoke member formed upon the base portion of the frame, a flat spring having an opening which engages with the post or extension and beneath the yoke member, and a latch of member carried by the base of the frame, the end of the flat spring engaging with the said latch.



An integral bracket and ornament structure comprising a band-like structure and having portions adapted to be secured together, an ornament integrally secured to one edge of the band there being a slot separating a portion of the ornament from the band, adjacent that part of the band, where the portions thereof are secured together, thereby rendering one of said portions slightly flexible.

Trade-Mark Is Registered in Patent Office.

The Wheeling Corrugating Company, Wheeling, West Virginia, has obtained United States Patent Office registration, under number 143,027, for the trade-mark shown in the accompanying illustration.



The particular description of goods to which it applies is sheet metal concrete forms, corner beads, and clips, corner shields, batten strips, metal bridging and farm cupolas. The Company claims use of this trade-mark since July 1, 1914, on corner shields; since July 1, 1916, on corner beads and clips; since about August 1, 1916, on batten strips; since about January 15, 1917, on barn cupolas, and since about July 15, 1917, on metal ridging.

Of two evils, why not reject both?

Notes and Queries.

Brass Screw Caps and Flanges.

From G. B. Fadner, 113 F. Avenue West, Cedar Rapids, Iowa.

I would like to know where I can buy brass screw caps and flanges.

Ans.—Atlas Copper and Brass Manufacturing Company, 2734 High Street, Chicago, Illinois, can furnish you with brass flanges for tanks. Aetna Screw and Bolt Company, 104 South Clinton Street, Chicago, Illinois, can supply you with brass screw caps for tanks.

Sheet Aluminum.

From M. L. Thompson, care of Thompson Brothers Company, 118 East Second Street, Muscatine, Iowa.

Can you inform us where we can obtain a piece of sheet aluminum?

Ans.—S. Birkenstein and Sons, 377 West Ontario Streets, Chicago, Illinois; U. S. Reduction Company, East Chicago, Indiana; Cleveland Metal Products Company, 7609 Platt Avenue, Cleveland, Ohio.

Porcelain for Spark Plugs.

From H. K. Christensen Manufacturing Company, Fort Atkinson, Wisconsin.

Kindly let us know who manufactures porcelain for spark plugs.

Ans.—American Porcelain Company, East Liverpool, Ohio; Union Electrical Porcelain Works, Trenton, New Jersey; Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pennsylvania; Capital Porcelain Manufacturing Company, Trenton, New Jersey.

Fireplace Fixtures and Screens.

From W. M. Schobinger, Shullsburg, Wisconsin.

Please advise who makes fireplace fixtures and screens.

Ans.—Fanner Manufacturing Company, Cleveland, Ohio; S. M. Howes Company, 42 Union Street, Boston, Massachusetts; Fred J. Meyers Manufacturing Company, Hamilton, Ohio; Edwin A. Jackson and Brother, Incorporated, 50 Beekman Street, New York City; Stover Manufacturing and Engine Company, Freeport, Illinois.

Tin Sheets Copper Plated.

From Frank Seeger, Globe Sheet Metal and Furnace Works, 529 Third Street, Milwaukee, Wisconsin.

We would like to know where we can purchase tin sheets copper plated.

Ans.—Merchant and Evans Company, 347 N. Sheldon Street, Chicago, Illinois; National Sheet Metal Company, Peru, Illinois.

Fireplace Outfits.

From C. A. Peck Hardware Company, Berlin, Wisconsin.

Will you please advise where we can purchase fireplace outfits?

Ans.—Fanner Manufacturing Company, Cleveland, Ohio; S. M. Howes Company, 42 Union Street, Boston, Massachusetts; Fred J. Meyers Manufacturing Company, Hamilton, Ohio; Edwin A. Jackson and Brother, Incorporated, 50 Beekman Street, New York City; Stover Manufacturing and Engine Company, Freeport, Illinois.

If your stomach is wrong when you come down in the morning you are going to start the day wrong, and you will probably finish it wrong.

Illustrations of New Patents

Watch This Page. Keep Yourself Informed Concerning Improved Devices Which May Save Labor in Your Shop or Add Another Source of Income to Your Retail Store.

1,376,829. Electric Stove. Sebring I. Phelps, Wilmette, Ill. Filed May 10, 1919.

1,376,906. Bottle-Capper. John J. Tokheim, Cedar Rapids, Iowa. Filed Aug. 28, 1919.

1,376,976. Flashlight Device. Paul C. Smalley, Newark, N. J. Filed January 13, 1920.

1,377,255. Washing Machine. Michael Krycki, Sacramento, Calif. Filed June 15, 1920.

1,377,286. Can Opener. Peter B. Searcy, Smithville, Texas. Filed September 16, 1920.

1,377,309. Fish Bait. Jesse J. Chapel, Packwaukee, Wis. Filed October 26, 1918.

1,377,344. Hasp. John D. Harrell, Bellevue, Fla. Filed October 26, 1920.

1,377,409. Lawn Sprinkler. Joseph J. Donegan, Kansas City, Mo. Filed March 2, 1920.

1,377,475. Draft Device. Vincent M. Haas, Philadelphia, Pa. Filed February 27, 1919.

1,377,477. Battery Hand-Lamp. Carl Hambuechen, Belleville, Ill., assignor, by mesne assignments to National Carbon Company, Inc., Cleveland, Ohio, a Corporation of New York. Filed April 13, 1917.

1,377,684. Kettle. John C. Hollands, Erie, Pa., assignor to Griswold Manufacturing Company, Erie, Pa., a Corporation of Pennsylvania. Filed March 10, 1919.

1,377,694. Filtering Flue for Gas Ranges. Maxemilean E. Koehler, Washington, D. C. Filed December 3, 1920.

1,377,732. Gas Heating Stove. Stefan Schreder and Nikolaus Schreder, Cleveland, Ohio. Filed February 27, 1920.

1,377,768. Clothesline Pulley and Fastener. Andrew Fox, Fort Wayne, Indiana. Filed February 6, 1920.

1,377,829. Tool. Andrew J. Hager, Quincy, Mass. Filed March 27, 1920.

1,377,930. Wrench. William H. Roach, Lindsay, Calif., assignor of one-half to L. G. Stallings and J. M. Hadley, Lindsay, Calif. Filed February 4, 1919.

1,377,958. Screwdriver or the Like. Carlos S. Andrews, Chicago, Ill. Filed August 28, 1916.

1,378,032. Magnetic Screwdriver. William J. Hood and Eugene J. Hood, Toledo, Ohio. Filed April 26, 1920.

1,378,043. Hot Air Stove. Curtis C. Lillibridge, Hutchinson, Kan. Filed November 3, 1919.

1,378,143. Stovepipe Clamp. Bascum Lenton Strange, Hernando, Fla. Filed April 26, 1920.

1,378,177. Washing Machine. Robert Leland Kincaid, Syracuse, N. Y. Filed December 6, 1919.

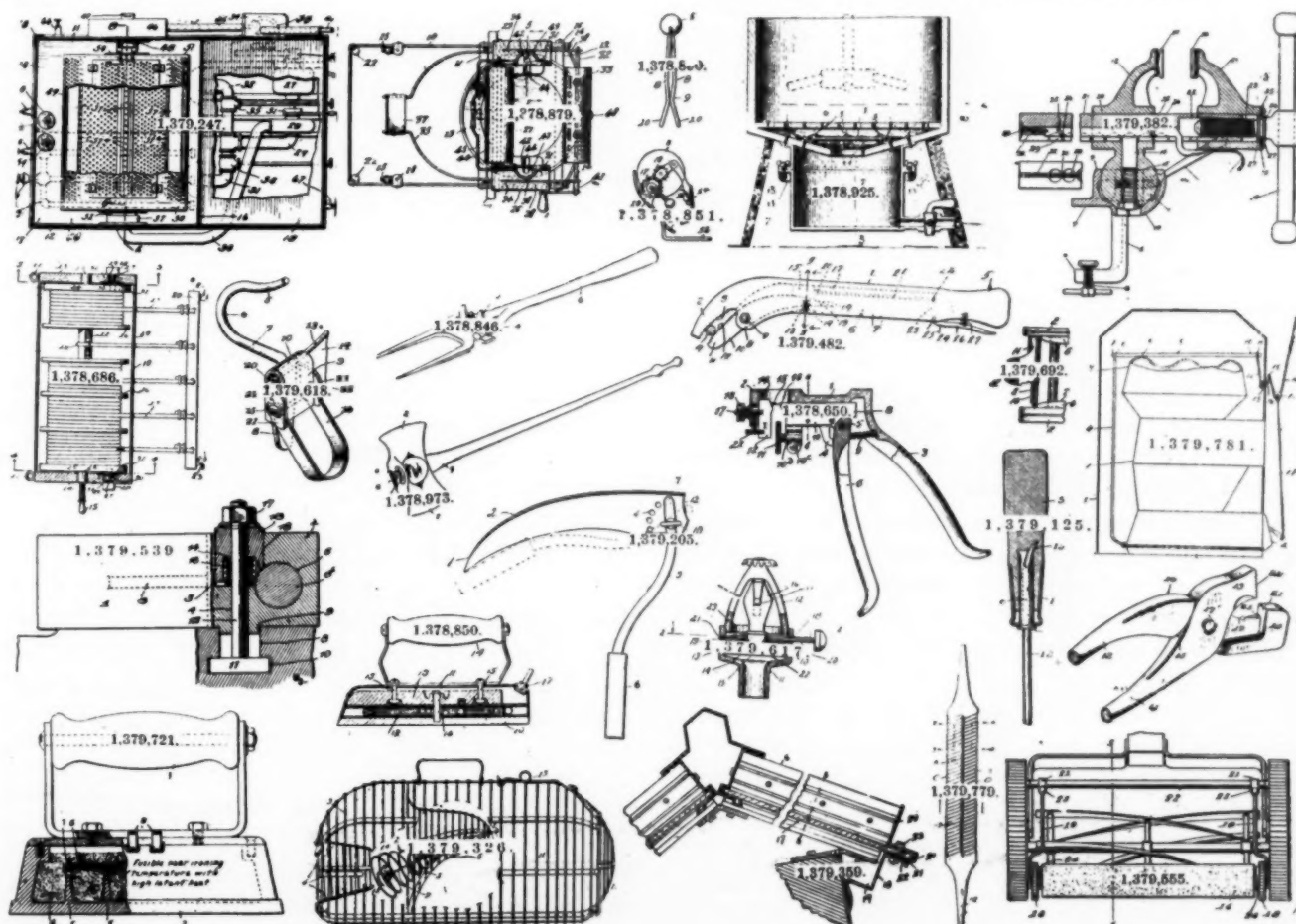
1,378,325. Clothes Wringer. James L. Coffield, Dayton, Ohio. Filed July 29, 1918.

1,378,339. Reamer. Robert J. Emory, Newark, N. J. Filed April 5, 1919.

1,378,476. Ventilator. John McGeorge, Lakewood, Ohio, assignor to the Ohio Body & Blower Company, Cleveland, Ohio, a Corporation of Ohio. Filed March 4, 1918.

1,378,500. Wringer Support. Ernest Twigg, New Britain, Conn., assignor to Landers, Frary & Clark, New Britain, Conn., a Corporation of Connecticut. Filed October 20, 1920.

1,378,541. Washing Machine. Orla L. Huffman, Weatherford, Texas. Filed January 27, 1920.



Weekly Report of the Markets

General Conditions in the Steel Industry. Review of Prices and Tendencies in Sheet Metals, Pig Iron, etc.

LEADING INTEREST ADOPTS OPEN MARKET POLICY.

Although the leading interest has made no formal declaration of the adoption of an open market, it has been coming out bit by bit for such a policy, as bids on inquiries were put out from time to time.

The first intimation was the drop in sheet prices during the past week, which amounted to some \$5 a ton by the American Sheet & Tin Plate Company, and since then other products by other subsidiaries have been quoted lower. Some three weeks ago when the American Steel & Wire Company reduced prices from the schedule established in April on wire and nails, it was generally thought at the time that the leading interest had adopted a policy of meeting competition as soon as and when instigated, but the move by the sheet subsidiary has been the first development along this line and was prompted by the announcement of similar reductions by the Republic Iron & Steel Company, followed by the other independents who had not already adopted a lower price.

Very seldom in its history has the leading interest maintained an open market and the trade is wondering if each price reduction on a particular product is to be accompanied by a similar write off on the orders already on the books of the corporation.

The past week has witnessed a further curtailment in production throughout the country at the plants of both the independents and the leading interest.

It is reported that the steel mills of the leading interest have dropped their rate of operation to 28 per cent of capacity and that the independents are hardly doing better than 15 per cent, whereas the week before had seen an increase in output, due to a temporary increase in demand.

This demand, however, did not hold up and has grown steadily lighter.

The steel output of the country today is about 22 per cent of capacity, and is being restricted further daily.

Steel.

The flurry in steel and pig iron buying that characterized the market a few days ago has died out and car lot and less than car lot sales again rule.

Further curtailment in production is freely predicted and the opinion of the trade is that the entire industry will be on a 20 per cent of capacity operation by the middle of next month.

That lower prices and wages will be made in the very near future is not disputed by any.

In fact, President Campbell of the Youngstown Sheet & Tube Company, stated recently that "nothing will help here but a quick readjustment of wages and freight rates. If we dally we are rendering great injustice to ourselves and to our workers who are walking the streets. We must have the courage to do it and do it quick."

Mr. Campbell has advocated the abolition of all agreements made during the federal control by the railroad administration and union representatives and the restoration to the individual railroads the right to negotiate wages, classification of employees and working conditions, and submitted a draft of his recommendations to President Harding.

Copper.

Copper producers are encouraged by larger sales made through the Copper Export Association within the last few days and the prospect of industrial recovery in Great Britain.

The outlook is now favorable for the settlement of the coal miners' strike.

Sterling exchange is steadier and the tendency is slightly upward as a result of the improved trade outlook.

Speculators are quick to anticipate any change in sterling either for the better or for the worse.

Domestic consumers also, in the last few days, have been more extensively in the market than at any time during the past two or three weeks.

Apparently, they are buying more from large producers than in the open market.

There was a slight increase in inquiry noted in the market at the beginning of the week, but still the demand holds in unusually low volume and is not expected to show signs of resuscitation until the present general depression has been somewhat alleviated.

Domestic and foreign trade are alike affected and the larger copper producers remain steadfastly out of the market at the prices quoted.

A reduction of $\frac{1}{4}$ cent per pound in Chicago price of copper sheet, mill base, has occurred, making the quotation now in effect 21 cents.

Tin.

A campaign against a duty on tin has been inaugurated by the National Association of Waste Material Dealers, who state that the only interest that would benefit by it would be the American Smelting & Refining Co., the foremost importer of South American tin ores.

A duty of 10 cents on pig tin and 6 cents on ore would result in enabling the tin trust to undersell all other tin traders by approximately 4 cents.

The following resolution was adopted: "Whereas, The country produces no pig tin mined within the United States and its territories, but smelts and refines tin ores from Bolivia, which ores do not produce a tin suitable for at least 75 per cent of the purposes for which pig tin is used; Therefore be it Resolved, That this association is unalterably opposed to a duty on pig tin, feeling that any duty would be contrary to any tariff policy heretofore shown by the United States." A copy was sent to the Ways and Means Committee and the Senate Finance Committee.

Lead.

An increase of 20 points was registered during the week in the Chicago prices of lead. American pig lead went up from \$4.50 per hundred pounds to \$4.70 and bar lead from \$5.25 per hundred pounds to \$5.45.

The first exports reported in several weeks were shipped out Monday, June 27, to Japan and amounted to 50 tons.

Joplin advices state that lead ores having dropped \$20 in five weeks, the downward course of lead prices has been checked.

Shipments last week were larger in moving the heavy purchases of the past three weeks and shipments amounted to 2,036 tons as against 1,628 the week before, while shipments since the first of the year aggregate 29,583 tons, as compared with 46,349 during the corresponding period last year.

Solder.

Chicago solder prices continue unchanged. Quotations now in effect are: Warranted, 50-50, per hundred pounds, \$21.00; Commercial, 45-55, per hundred pounds, \$19.50; and Plumbers', per hundred pounds, \$18.25.

Zinc.

Again the domestic zinc market was stronger and recorded a gain.

The St. Louis settling price advanced Tuesday of this week from 4.22½ to 4.25 cents a pound, but the New York nominal price was still unchanged at the recent low of 4.60 cents.

Slab zinc fell off 10 points in the Chicago market—from \$4.80 to \$4.70 per hundred pounds.

Joplin advices state that the storing of ore at the bins of smelters is an innovation that has just been inaugurated by one company.

This ore is paid for as purchased and is not being shipped from the district. Other interests look upon it as a speculative movement for a resale at higher prices.

Sheets.

Demand for sheets continues extremely light, as a whole. In some quarters, however, improvement is to be noted.

In particular, the leading interest has received in the past week some very fair sized orders for sheets used in building trades work, including sheets for metal lath, and one very good order for sheets for car roofs, easily the largest order for this class of material booked for many weeks.

Demand for automobile sheets, which was conspicuously good for two or three months, until a few weeks ago, is now down to almost nothing.

Even Ford does not seem to have formulated any definite schedule for operations after July 1st.

Tin Plate.

The tin plate market is firm but extremely dull.

It is contended by producers that the \$6.25 price on production plate is not being cut and no evidence to the contrary can be found.

Some tin plate consumers are claiming that they could buy at cut prices, but this is hardly a practical

point since they do not do so, in fact scarcely an inquiry comes up of really large size.

The shipments being made from mills are in very large part against old contracts, these contracts having indeed been made at prices above \$6.25, the price being subsequently adjusted to this figure.

Only a small percentage of the shipments now being made is from stocks.

It is admitted that stock plates are going at concessions from the \$6.25 price in many cases, but it has been the common practice in the trade for years to make a concession on stock plates.

At the rate stocks are being disposed of they will last quite a while.

Much of the stock was made up against the requirements of certain specific industries and must wait until such industries can consume it.

Both the leading interest and the independents are operating at close to 25 per cent of their tin plate capacity, making about the same rate as in the past few weeks. There is no definite prospect of the rate going either up or down in the next few weeks.

Old Metals.

Wholesale quotations in the Chicago district which should be considered as nominal are as follows: Old steel axles, \$13.00 to \$13.50; old iron axles, \$24.00 to \$25.00; steel springs, \$12.00 to \$12.50; No. 1 wrought iron, \$9.75 to \$10.25; No. 1 cast, \$12.50 to \$13.00; all per net tons. Prices for non-ferrous metals are quoted as follows, per pound: Light copper, 7 cents; light brass, 4 cents; lead, 3 cents; zinc, 2 cents; cast aluminum, 10 cents.

Pig Iron.

Reports from Birmingham, Alabama, state that the U. S. Cast Iron Pipe & Foundry Company has purchased 6,000 to 7,000 tons of foundry pig iron, a portion of which is to cover the contract for high pressure pipe recently awarded by the City of Phoenix, Arizona.

Other Southern pipe works are also reported to have bought several thousand tons of foundry pig iron at prices ranging from \$21 to \$22 furnace. The outside price, of course, is for a small lot. The orders were placed with several furnaces, one of which sold upward of 5,000 tons, all for early shipment.

The situation as to pig iron shows no appreciable change in the direction of greater demand.

Manifestly, the general condition of the steel industry is the determining influence in the pig iron market.

The rate of operation of the steel mills has dwindled down close to 20 per cent of capacity.

This means that the numerous industries and transportation of the country are not producing or carrying the normal amount of commodities into whose manufacture iron or steel enters.

However, the outlook is not entirely without hope. Civilization has not been destroyed nor the needs of our modern commerce cut down to the measure of fifty or a hundred years.

We will not go back to the hand plow nor return to mechanical poverty of a century ago.

On the contrary, we will hold our gains. Hence, when prosperity returns, industry will be more active than ever; and pig iron will be in greater demand than at any time in history.

Current Hardware and Metal Prices.

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS		HARDWARE		Scratch.		BEVELS, TEE.	
PIG IRON.		ADZES.		No. 1S, socket Handledper doz. \$ 2 50		Stanley's Rosewood handle, new listNet	
Northern Fdy. No. 2.....\$21 20		Carpenters'.		No. 344 Goodell- Pratt, list less.....35-40%		Stanley iron handle.....Net	
Southern Fdy. No. 2.....26 67		Plumbs.....Per doz. \$29 00		No. 7 Stanley...per doz. \$ 2 25		BINDING CLOTH.	
Lake Sup. Charcoal.....37 50		Coopers'.		AXES.		Zincd55%	
Malleable21 20		Barton'sNet		First Quality, Single		Brass40%	
FIRST QUALITY BRIGHT TIN PLATES.		White'sNet		Bitted, 3 to 4 lb., per doz. 16 50		Brass, plated.....60%	
Per Box		Railroad.		First Quality Double		BITS.	
IC 14x20 112 sheets \$12 50		Plumbs.....Per doz. \$30 00		Bittedper doz. 22 50		Auger.	
IX 14x20.....13 60		AMMUNITION.		Broad.		Jennings Pattern.....Net	
IXX 14x20.....15 20		Shells, Loaded, Peters.		Plumbs. Can. Pat., 6-lb. 65 00		Ford Car.....List plus 5%	
IXXX 14x20.....16 60		Loaded with Black Powder, 18%		Single Bitted (without handles).		Ford's Ship....." 5%	
IXXXX 14x20.....18 10		Loaded with Smokeless		Plumbs, 4 1/2-lb.....19 50		Irwin35%	
IC 20x28.....25 00		Powder18%		Double Bitted (without handles).		Russell Jennings.....plus 20%	
IX 20x28.....27 20		Winchester.		Plumbs, 4 1/2-lb.....23 50		Clark's Expansive.....33 1/2%	
IXX 20x28.....30 40		Smokeless Repeater Grade,		BAGS, PAPER, NAIL.		Steer's " Small list, \$22 00..5%	
IXXX 20x28.....33 20		Smokeless Leader Grade,		Pounds .. 10 16 20 25		" " Large " \$26 00..5%	
IXXXX 20x28.....36 20		Black Powder.....10 & 4%		Per 1000..\$5 00 6 50 7 50 9 00		Irwin Car.....35%	
COKE PLATES		U. M. C.		BALANCES, SPRING.		Ford's Ship Auger pattern	
Cokes, 180 lbs.... 20x28 \$14 20		Nitro Club.....18%		Sight Spring.....Net		CarList plus 5%	
Cokes, 200 lbs.... 20x28 14 50		Arrow18%		StraightNet		Center10%	
Cokes, 214 lbs....IC 20x28 14 35		New Club18%		BARS, WRECKING.		Countersink.	
Cokes, 270 lbs....IX 20x28 16 65		Gun Wads—per 1000.		V. & B. No. 12.....\$0 45		No. 18 Wheeler's..per doz. \$2 25	
BLUE ANNEALED SHEETS.		Winchester 7-8 gauge 10&7 1/2%		V. & B. No. 24.....0 75		No. 20 " " " 3 00	
Base.....per 100 lbs. \$4 13		" 9-10 gauge 10&7 1/2%		V. & B. No. 324.....0 80		American Snailhead " 1 75	
ONE PASS COLD ROLLED BLACK.		" 11-28 gauge 10&7 1/2%		V. & B. No. 30.....0 85		" Rose " " 2 00	
No. 18-20.....per 100 lbs. \$5 20		Powder.		V. & B. No. 330.....0 90		" Flat " " 1 40	
No. 22-24.....per 100 lbs. 5 25		DuPont's Sporting, kegs..\$11 25		BASKETS.		Mahew's Flat " " 1 60	
No. 26.....per 100 lbs. 5 30		" 1/4 kegs 3 10		Clothes.		" Snail " " 1 90	
No. 27.....per 100 lbs. 5 35		DuPont's Canisters, 1-lb.. 55		Small Willow...per doz. \$15 00		Dowel.	
No. 28.....per 100 lbs. 5 40		" kegs.. 22 00		Medium Willow. " 17 00		Russel Jennings.....plus 20%	
No. 29.....per 100 lbs. 5 50		" 1/4 kegs 5 75		Large Willow... " 20 00		Gimlet.	
GALVANIZED.		Hercules "E.C." kegs.. 22 50		Galvanized. 1 bu. 1 1/2 bu.		Standard Double Cut Gross \$8 40	
No. 16.....per 100 lbs. \$5 40		Hercules "Infallible," 25-can		Per doz.....\$16 08 \$18 72		Nail Metal Single	
No. 18-20.....per 100 lbs. 5 55		drums 22 00		BEATERS.		CutGross \$4 00—\$5 00	
No. 22-24.....per 100 lbs. 5 70		Hercules "Infallible," 10-can		Carpet.		Reamer.	
No. 26.....per 100 lbs. 5 85		drums 9 00		No. 7 Tinned Spring Wire..\$1 10		Standard Square.....Dox. \$2 50	
No. 27.....per 100 lbs. 6 00		Hercules "E.C." and "Infal-		No. 8 Spring Wire Cop-		American Octagon... " 2 50	
No. 28.....per 100 lbs. 6 15		lible," canisters..... 1 00		pered 1 50		Screw Driver.	
No. 30.....per 100 lbs. 6 65		Hercules W. A. 30 Cal. Rifle,		No. 9 Preston..... 1 75		No. 1 Common..... 35	
BAR SOLDER.		canisters 1 25		EGG.		No. 26 Stanley..... 75	
Warranted,		Hercules Sharpshooter Rifle,		No. 50 Imp. Dover.....\$1 10		BLADES, SAW.	
50-50.....per 100 lbs. \$21 00		canisters 1 25		No. 102 " " Tinned 1 35		Wood.	
Commercial,		Hercules Bullseye Revolver,		No. 150 " " hotel 2 10		Disston 30-in.	
45x55.....per 100 lbs. 19 50		canisters 1 00		No. 10 Heavy hotel tinned 2 10		Nox 66 26	
Plumber's.....per 100 lbs. 18 50		ANVILS.		No. 13 " " " 3 30		\$9 45 \$10 05 \$9 45	
ZINC.		Solid Wrought...23 & 23 1/2c per lb.		No. 15 " " " 3 60		BLOCKS.	
In Slabs\$4 70		ASBESTOS.		No. 13 " " " 4 50		Wooden20%	
SHEET ZINC.		Paper up to 1/16.....10c per lb.		BELLS.		Patent30%	
Cask lots11c		Millboard 3/32 to 1/4...10 1/2c per lb.		Call.		BOARDS.	
Less than cask lots...11 1/4-11 1/2c		Corrugated Paper (250		3-Inch Nickeled Rotary Bell,		Per doz.	
COPPER.		sq. ft.).....\$6.50 per 100 lbs.		Bronzed base...per doz. \$5 50		3x24\$13 65	
Copper Sheet, mill base....\$0 21		Rollboard11c per lb.		Cow.		26x2614 05	
LEAD.		AUGERS.		Kentucky30%		28x2818 35	
American Pig\$4 70		Boring Machine.....40 @ 40 & 10%		Door.		30x3021 30	
Bar5 45		Carpenter's Nut.....50%		New Departure Automatic \$7 50		32x3225 50	
Sheet.		Hollow.		Rotary.		36x3630 50	
Full coils.....per 100 lbs. \$7 75		Bonney's.....per doz. \$30 00		3 -In. Old Copper Bell... 6 00		Wash.	
Cut coils.....per 100 lbs. 8 00		Post Hole.		3 -In. Old Copper Bell,		No. 750, Banner Globe	
TIN.		Iwan's Post Hole and Well...30%		fancy 8 00		(single)per doz. \$5 35	
Pig tin.....32c		Vaughan's, 4 to 9 in.		3 -In. Nickeled Steel Bell 6 00		No. 652, Banner Globe	
Bar tin.....34c	per doz. \$14 90		3 1/4-In. Nickeled Steel Bell 6 50		(single)per doz. 6 75	
AWLS.		Ship.		Hand.		No. 801, Brass King, per doz. 8 35	
No. 3 Handled...per doz. \$0 45		Ford'sNet		Hand Bell polished List plus 15%		No. 860, Single—Plain	
No. 1050 Handled " 1 40		BRAD.		White Metal..... 15%		Pump 6 35	
Patent asst'd, 1 to 4 " 25		No. 3 Handled...per doz. \$0 45		Nickel Plated.... 5%		BOLTS.	
HARNES.		No. 1050 Handled " 1 40		Swiss 10%		Carriage, Machine, etc.	
Common 1 05		Patent asst'd, 1 to 4 " 25		Miscellaneous.		Carriage, cut thread, 1/2x4	
Patent 1 00		PEG.		Church and School, steel		and sizes smaller and	
Shouldered 1 60		Shouldered 1 60		alloys30%		shorter50 & 1%	
Patented 75		Patented 75		Farm, lbs.. 40 50 75 100		Carriage sizes larger and	
				Each\$3 00 3 75 5 50 7 25		longer than 1/2x4.....50%	
						Machine, 1/2x4 and sizes	
						smaller and shorter.....60%	
						Machine, sizes larger and	
						longer than 1/2x4.....50 & 10%	
						Stove70%	
						Tire50 & 10%	
						Mortise, Door.	
						Gem, iron.....5%	
						Gem, bronze plated.....5%	

Barrel. CastNet Wrought Wrought, bronzed.....	CEMENT, FURNACE. American Seal, 5 lb. cans, net \$ 45 " 10 lb. cans, " 90 " 25 lb. cans, " 1 87 Asbestos, 5 lb. cans.... 45 Pecora, 5 lb. cans.... 45 " 10 lb. cans.... 90 " 25 lb. cans.... 1 87	Quilt Frame. No. 30 Ball and Socket, 2 1/4" head....per gross \$12 00 No. 50 Ball and Socket, 3 1/4" head....per gross 14 50 Hose. Sherman's, brass, 1/2", per doz.\$0 45 Double, brass 1/2", per doz. 1 20 Saw Filers. Wentworth's, No. 1, \$12 50; No. 2, \$18 25; No. 3, \$16 25.	DIGGERS. Post Hole. Eureka.....per doz. \$14 50 Iwan's Split Handle (Eu- reka) 4-ft. Handle...per doz. 15 00 7-ft. " ...per doz. 20 00 Iwan's Hercules pattern per doz. 18 00 Dividers, Wing35%
Flush. Wrought Spring. Wrought Wrought, heavy..... Square. Wrought	CHAINS. Breast Chains. With Slide.....doz. pairs, 5 50 Without Slide.... 5 00 Doubleslack..... 9 35 With Covert Snaps " 6 38 Picture Chains. Light Brass, 3 ft. per doz. 1 25 Heavy Brass, 3 ft. " 1 75	CLAWS, TACK. Wood hdl. No. 10...per doz. \$0 95 Forged steel, wood hdl. " 1 75 Solid steel 2 40 Giant 50	DRILLS. Blacksmiths' Twist (New List)40% Breast. Millers Falls No. 12, each \$46 00 " " "112, " 26 00
BOXES. Mail, No. 2 4 10 Per doz...\$18 00 \$23 00 29 00 Mitre. Stanley's.....Net Prices Stearns, No. 2...per doz. \$48 00	Sash Chain. (Morton's) Steel, per 100 ft. 0 \$2 50 2 3 10 1 3 60	CLEANERS. Drain. Iwan's Adjustable.....25% Iwan's Stationary.....30% Pot. Wireper doz. \$0 75	Hand. Goodell's Automatic. Nos. 01 02 Per doz. 12 00 14 40 Goodell's Single Gear, per doz. 15 75 Goodell-Pratt No. 4 1/2, per doz. list, less.....30% Goodell-Pratt No. 3 7/8, per doz. list, less.....30%
BRACES, RATCHET. Goodell-Pratt No. 408\$4 60 " " No. 410 4 80 " " No. 412 5 00 V. & B. No. 444 8 in..... 4 65 V. & B. No. 333 8 in..... 4 30 V. & B. No. 222 8 in..... 4 00 V. & B. No. 111 8 in..... 3 50 V. & B. No. 11 8 in..... 3 05	Champion Metal. 0R 5 40 2R 5 60 1R 7 75 Champion Metal.—Extra Heavy. 1H \$9 50 Cable Sash Chains. Steel.....List Net Plus 15%	CLEAVERS. Family. Beatty's, Inch..... 7 8 9 10 Per doz. \$27 00 29 00 33 00 36 00 CLEAVISES. Malleable10c lb. CLIPPERS. Bolt\$2 25 & 6 00 CLIPS. Axle65 @ 5% Damper. Standardper doz. 70c Troy 38c Hame 50c	Reciprocating. Goodell's..... per doz. 25 00 DRIVERS, SCREW. StandardNets Lock Ferrule Clark's Interchangeable..... Goodell's Spiral Yankee Ratchet " Spiral EAVES TROUGH. 70 & 10% off Standard List.
BURRS, RIVETING. Copper Burrs only...25% above list Tinners' Iron Burrs only.....30% BUTTS. Cast Iron7 1/2% Wrought Bronze, No. 175 AC 2 1/2\$1 75 Steel, Bright, Narrow 15-7 1/2-5% Steel, Japanned, NarrowList+65%	CHALK, CARPENTERS'. Blueper gro. \$1 40 Red 1 40 White 1 25 Common White School Crayon 25c CHIMNEY TOPS. In bagsper bag \$1 70 CHECKS, DOOR CorbinNet List Rumswin20% CHISELS. Cold. Good quality, 1/4 in., each \$0 44 " 1/2 in., " 0 28 Diamond Point. V. & B. No. 15, 1/4 in..... 0 23 V. & B. No. 15, 1/2 in..... 0 48	COLLARS, STOVE PIPE. Lacquered, Inches 5 6 7 Fancy pattern, per doz.... 80c 85c \$1 15 COMPASSES. Carpenters'15% COPPERS—Soldering. Pointed Roofing. 3 lb. and heavier....per lb. 37c 2 lb. 35c 2 1/2 lb. 37c 1 1/2 lb. 40c 1 lb. 43c CORD. Picture. White Wire60 & 5% Sash. Sampson Spot, No. 7, per doz.\$10 25 COTTERS, SPRING. All sizes87 1/2% COUPLINGS, HOSE. Brassper doz. \$2 25 CRADLES, GRAIN. Morgan's Grapevine per doz. \$45 00 CUTTERS. Glass, Woodward40% Meat. Enterprise—Nos. 5 10 12 Each.... \$2 50 \$4 25 \$3 75 " Nos. 22 32 " 6 50 8 50	ELBOWS—Stove Pipe. 1-piece Corrugated, Uniform. Dox. 5-inch\$1 50 6-inch 1 60 7-inch 2 10 Uniform, Collar Adjustable. Dox. 5-inch\$1 90 6-inch 2 00 7-inch 2 50 ELBOWS—Conductor Pipe. Galvanized Steel, Tin and Terne, Round Corrugated. Size Dox. 2-inch60% 3-inch60% 4-inch60% 5-inch60% 6-inch60% ENAMEL, STOVE. Iron, Black. Per Gross Peerless Gloss, 1/4 pt.....\$16 20 " 1/2 pt..... 31 00 Per doz. " 1/4 gal.....\$12 00 " 1 gal..... 31 00 Aluminum Per Gross Peerless, 1/4 pt..... \$43 60 " 1/2 pt..... 61 20 EMERY. Domestic, lb.11 1/2c FASTENERS, STORM SASH. Shroeder'sper doz. \$1 50 Sensible " 3 00
CALIPERS. DoubleNet Inside and Outside..... Wing CALKS. Toe. Blunt and medium, 1 prong, per 100 lbs.....\$6 20 Sharp, 1 prong, per 100 lbs. 6 70 CANS. Milk. Ohio. Gals..... 5 8 10 Each\$3 65 \$4 45 \$4 70 Gem. Gals..... 5 8 10 Each\$3 35 \$4 95 \$5 20 Jersey or Holstein. Gals..... 5 8 10 Each\$4 15 \$5 60 \$5 90 CAN OPENERS. See Openers. CAPS, GUN. See Ammunition. CARRIERS. Hay. Diamond, Regular...each, Nets Diamond, Sling..... CARTRIDGES. See Ammunition. CASTERS. Standard—Ball Bearing, 50&10% Bed40% Common Plate. Brass Wheel15% Iron and porcelain wheels, new list.....60% Philadelphia Plate, new list50% Martin's40% CATCHERS, GRASS. No. 160S, per doz.....\$12 25 No. 165S, " 14 01	CHUCKS, DRILL. Goodell's, for Goodell's Screw DriversList less 35-40% Yankee, for Yankee Screw Drivers36 00 CHURNS. Anti-Bent Wood, Gal. 5 7 10 Each\$3 00 4 60 4 85 Belle, Barrel65&7 1/2% Common Dash, Gal. 5 7 Per doz.\$17 00 19 00 CLAMPS. Adjustable. Martin's30% No. 63, Screw.....20% Cabinet. Screw20% Carpenters'. Steel Bar..List price plus 25% Carriage Makers'. 2 1/2"per doz. \$ 7 00 5" 14 00 8" 28 00 12" 46 00	CLIPS. Axle65 @ 5% Damper. Standardper doz. 70c Troy 38c Hame 50c COLLARS, STOVE PIPE. Lacquered, Inches 5 6 7 Fancy pattern, per doz.... 80c 85c \$1 15 COMPASSES. Carpenters'15% COPPERS—Soldering. Pointed Roofing. 3 lb. and heavier....per lb. 37c 2 lb. 35c 2 1/2 lb. 37c 1 1/2 lb. 40c 1 lb. 43c CORD. Picture. White Wire60 & 5% Sash. Sampson Spot, No. 7, per doz.\$10 25 COTTERS, SPRING. All sizes87 1/2% COUPLINGS, HOSE. Brassper doz. \$2 25 CRADLES, GRAIN. Morgan's Grapevine per doz. \$45 00 CUTTERS. Glass, Woodward40% Meat. Enterprise—Nos. 5 10 12 Each.... \$2 50 \$4 25 \$3 75 " Nos. 22 32 " 6 50 8 50	FILES AND RASPS. Simonds'50% Dimston's50% Heller's (American)50&10% American50-10-5% Arcade50-10-5% Black Diamond40-10-2 1/2% Eagle50-10-1% Great Western50-10-5% Kearney & Foot.....50-10-5% McClellan50-10-5% Nicholson40-10-2 1/2% J. Barton Smith.....50-10-5% X FNet List FIRE POTS. Clayton & Lambert's— each\$4 00 @ \$5 00 Gate Cityeach 6 25 Gemeach, \$6 75 @ 8 50

Manure. 4-tine.....New prices	Coal Pick.....40% Drifting Pick.....40% File, assorted, 30c; Large, 35c per doz.	HOOKS. Awning, No. 60....per gro. 50%	KNIVES. Beet Topping. Clyde, 9-in. Scimitar Blade, doz. \$3 25 California 2 40
GAUGES. Cream Pall. Fairmount.....per doz. \$3 75	Hammer. Adze Eye...per doz. 40c to \$1 00 Blacksmiths' " 45c @ 1 00 Machinists' " 50c @ 1 00	Belt. Brown's70&5% Jones'65&5%	Butcher. Per doz. Beechwood Handles, 6" blade\$4 00 Beechwood Handles, 7" blade 4 65 Beechwood Handles, 8" blade 5 65
Marking, Mortise, etc.....Nets Wire. Disston's25%	Hay and Manure Fork.....25% Screw Driver. Assorted 6 Large 9	Box. No..... 6 8 10 12 Each\$0 29 0 77 0 36	Cooper's Hoop15% Corn. Clipperper doz. \$1 75 Disston's " 2 75 Earle's " 3 60 Woodford " 2 25
GIMLETS. Discount35@40%	Shovel and Spade.....25% HANGERS. Barn Door. U. S. Roller Bearing....12 1/4% Matchless12 1/4% Warehouse Tandem, No. 4433 1/4%	Bush. Common Axe Handle, per doz.\$22 00	Drawing. StandardList&5% Adjustable15% Barton's Carpenters'15%
GLUE. Bulk. B Amber.....per lb. 35c A White..... " 40c H S. Amber..... " 32c	Conductor P. Iwan's Perfection.....45%	Chain. Inch.. 1/4&5/16 3/4 7/16 1/2 Pr. 100 \$7 60-8 10 9 75 11 50 12 60	Hay. Iwan's Solid Socket...doz. 13 00 Heath's " 13 00 Iwan's, Sickle Edge... " 13 00 Iwan's Imp'd Serrated " 13 00
Liquid. Army & Navy.....40% Le Page's.....37 1/2% List "A".....33 1/2% List "B".....33 1/2% List "C".....25 %	Eaves Trough. All sizes, 5" or smaller,per gross \$2 80 Net All sizes, larger than 5"per gross 5 00 "	Clothes Line. Japannedper doz. 48c @ 1 40 Galvanized.... " 75 @ 2 50	Hedge. Challengeper doz. \$6 00 Disston's " 3 75
GREASE, AXLE. Wood Boxes. Frazer'sper gro. \$13 00 Hub Lightning..... 7 50	Garage Door. Right Angle50&10% Sliding Folding50% Receding59%	Coat and Hat. Common Wire per gro. 1 25-1 65	Mincing. Common, Single .. " 60 Common, Double.. " 30 Streeter, 4-blade.. " 1 30 Streeter, 6-blade.. " 2 00
Wood Pulls. Frazer's, 15 lb. \$1.00; 25 lb. \$1.50 each. Hub Lightning, 15 lb. 90c; 25 lb. \$1.21 each.	Parlor Door. Acmeper set, \$3 75 Ives' Improved.... " 3 40 Lane's Standard... " 3 50 Lane's New Model " 3 10 Le Roy Noiseless...40&10% Richards25% Advance40&10%	Conductor. Iwan's Tinned Sickle.....List	Putty. Common ...per doz. \$0 75 @ 1 50 Landers ... " 1 75 @ 2 50
Tin Cans. Frazer's. 1 1/2 lb. per doz.....\$1 75 3 lb. per doz..... 3 25	Grindstones. Family. Inches.. 7 8 10 12 Per doz. 20 50 21 75 26 25 30 50	Grass. Common Nos. 1 3 5 7 Per Doz.....\$4 50 3 50 3 75 3 25	Scraping. Beech Handle 90 @ 1 10 Landers' 5 50 @ 6 50
Mounted. Ball Bearing.. 1 2 3 Each\$4 75 5 00 5 25	HASPS. Hinge, Wrought...Add 50% to list With Staples—See Staples.	Hammock. With plate.....per doz. 1 10 With screw..... " 1 00	Knobs. Door. Mineralper doz. \$1 20 Porcelain " 1 00 Jet " 2 00
GUNS. Iver Johnson Champion Single Barrel Shot Guns.....Net Double Barrel, Hammerless.. "	HATCHETS. Plumbs, Claw No. 1.....\$1 65 Cast Claw, per doz.. 1 50 @ 1 85 Cast Shingling " 1 50 @ 1 85 Germantown7 1/2% Plumbs, Octagon, Half.....\$2 00 Plumbs, Broad, No. 1..... 1 90 Plumbs, Lathing No. 1..... 1 50	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c
GRINDSTONES. Family. Inches.. 7 8 10 12 Per doz. 20 50 21 75 26 25 30 50	HAY RACK BRACKETS. Wenzleman's No. 1per doz. sets \$18 00 Wenzleman's No. 2per doz. sets 19 20	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c
Mounted. Ball Bearing.. 1 2 3 Each\$4 75 5 00 5 25	HASPS. Hinge, Wrought...Add 50% to list With Staples—See Staples.	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c
GUNS. Iver Johnson Champion Single Barrel Shot Guns.....Net Double Barrel, Hammerless.. "	HATCHETS. Plumbs, Claw No. 1.....\$1 65 Cast Claw, per doz.. 1 50 @ 1 85 Cast Shingling " 1 50 @ 1 85 Germantown7 1/2% Plumbs, Octagon, Half.....\$2 00 Plumbs, Broad, No. 1..... 1 90 Plumbs, Lathing No. 1..... 1 50	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c
GRINDSTONES. Family. Inches.. 7 8 10 12 Per doz. 20 50 21 75 26 25 30 50	HAY RACK BRACKETS. Wenzleman's No. 1per doz. sets \$18 00 Wenzleman's No. 2per doz. sets 19 20	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c
Mounted. Ball Bearing.. 1 2 3 Each\$4 75 5 00 5 25	HASPS. Hinge, Wrought...Add 50% to list With Staples—See Staples.	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c
GUNS. Iver Johnson Champion Single Barrel Shot Guns.....Net Double Barrel, Hammerless.. "	HATCHETS. Plumbs, Claw No. 1.....\$1 65 Cast Claw, per doz.. 1 50 @ 1 85 Cast Shingling " 1 50 @ 1 85 Germantown7 1/2% Plumbs, Octagon, Half.....\$2 00 Plumbs, Broad, No. 1..... 1 90 Plumbs, Lathing No. 1..... 1 50	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c
GRINDSTONES. Family. Inches.. 7 8 10 12 Per doz. 20 50 21 75 26 25 30 50	HAY RACK BRACKETS. Wenzleman's No. 1per doz. sets \$18 00 Wenzleman's No. 2per doz. sets 19 20	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c
Mounted. Ball Bearing.. 1 2 3 Each\$4 75 5 00 5 25	HASPS. Hinge, Wrought...Add 50% to list With Staples—See Staples.	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c
GUNS. Iver Johnson Champion Single Barrel Shot Guns.....Net Double Barrel, Hammerless.. "	HATCHETS. Plumbs, Claw No. 1.....\$1 65 Cast Claw, per doz.. 1 50 @ 1 85 Cast Shingling " 1 50 @ 1 85 Germantown7 1/2% Plumbs, Octagon, Half.....\$2 00 Plumbs, Broad, No. 1..... 1 90 Plumbs, Lathing No. 1..... 1 50	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c
GRINDSTONES. Family. Inches.. 7 8 10 12 Per doz. 20 50 21 75 26 25 30 50	HAY RACK BRACKETS. Wenzleman's No. 1per doz. sets \$18 00 Wenzleman's No. 2per doz. sets 19 20	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c
Mounted. Ball Bearing.. 1 2 3 Each\$4 75 5 00 5 25	HASPS. Hinge, Wrought...Add 50% to list With Staples—See Staples.	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c
GUNS. Iver Johnson Champion Single Barrel Shot Guns.....Net Double Barrel, Hammerless.. "	HATCHETS. Plumbs, Claw No. 1.....\$1 65 Cast Claw, per doz.. 1 50 @ 1 85 Cast Shingling " 1 50 @ 1 85 Germantown7 1/2% Plumbs, Octagon, Half.....\$2 00 Plumbs, Broad, No. 1..... 1 90 Plumbs, Lathing No. 1..... 1 50	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c
GRINDSTONES. Family. Inches.. 7 8 10 12 Per doz. 20 50 21 75 26 25 30 50	HAY RACK BRACKETS. Wenzleman's No. 1per doz. sets \$18 00 Wenzleman's No. 2per doz. sets 19 20	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c
Mounted. Ball Bearing.. 1 2 3 Each\$4 75 5 00 5 25	HASPS. Hinge, Wrought...Add 50% to list With Staples—See Staples.	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c
GUNS. Iver Johnson Champion Single Barrel Shot Guns.....Net Double Barrel, Hammerless.. "	HATCHETS. Plumbs, Claw No. 1.....\$1 65 Cast Claw, per doz.. 1 50 @ 1 85 Cast Shingling " 1 50 @ 1 85 Germantown7 1/2% Plumbs, Octagon, Half.....\$2 00 Plumbs, Broad, No. 1..... 1 90 Plumbs, Lathing No. 1..... 1 50	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c
GRINDSTONES. Family. Inches.. 7 8 10 12 Per doz. 20 50 21 75 26 25 30 50	HAY RACK BRACKETS. Wenzleman's No. 1per doz. sets \$18 00 Wenzleman's No. 2per doz. sets 19 20	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c
Mounted. Ball Bearing.. 1 2 3 Each\$4 75 5 00 5 25	HASPS. Hinge, Wrought...Add 50% to list With Staples—See Staples.	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c
GUNS. Iver Johnson Champion Single Barrel Shot Guns.....Net Double Barrel, Hammerless.. "	HATCHETS. Plumbs, Claw No. 1.....\$1 65 Cast Claw, per doz.. 1 50 @ 1 85 Cast Shingling " 1 50 @ 1 85 Germantown7 1/2% Plumbs, Octagon, Half.....\$2 00 Plumbs, Broad, No. 1..... 1 90 Plumbs, Lathing No. 1..... 1 50	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c
GRINDSTONES. Family. Inches.. 7 8 10 12 Per doz. 20 50 21 75 26 25 30 50	HAY RACK BRACKETS. Wenzleman's No. 1per doz. sets \$18 00 Wenzleman's No. 2per doz. sets 19 20	Picture50%&50%&10% Potato and Manure.....Nets	Ladders. Common Long. Per ft.17c&22c

<p>LINING, STOVE. Bricksper crate 42c</p> <p>LOCKS Barn Door. No. 60 Stearns...per doz. \$12 00 No. 80 " " " 24 00</p> <p>MACHINES. Riveting. Stearns No. 1...per doz. \$16 00 Tenoning. No. 50 Peace's Spoke, each \$16 00</p> <p>MAIL BOXES. See Boxes.</p> <p>MALLETS. Carpenters'. Fibre Head, No. 2 per doz. \$16 50 " No. 3 " 19 50 " No. 4 " 28 50 Round Hickory per doz. \$3 00— 5 00 Round Lig- numvitae " 6 25—10 50 Square Hickory " 3 50— 5 50 Square Lig- numvitae " 8 00—12 00 Tinner's'. Hickoryper doz. \$2 25</p> <p>MATS. Door. National Rigid5&10&5% Acme Steel Flexible.....50% Stove. No. 2.....per gro. Nets No. 1....." " No. 1 Asbestos Toasters or wire-covered Stove Mats, with handle....per doz. 1 10 No. 2 Asbestos Toasters, with ringper doz. 60</p> <p>MATTOCKS. Plumbs 25%</p> <p>MAULS. Wood Choppers'. Lake Superior & Oregon pat.40&5%</p> <p>MEASURES. Galvanized, dozNets Japanned, dozNets</p> <p>MILLS, COFFEE. Arcade40-10%</p> <p>MITRE BOXES. See Boxes.</p> <p>MOPS. Cotton, Star (Cut Ends). Pounds 12' 15' 18' 24'-3-oz. Per doz. \$4 50 5 65 6 75 9 00 Enterprise16&5% Parker50&5%</p> <p>NAILS. Cut Steel\$4 45 Cut Iron 4 45 Wire. Common 4 00 Cement Coated. Small Lots..... 4 20 Horsehoe. Ausable55&5% Capewell15% Perfect55&5% Putnam20&5% Star30&5% Picture. Brass Heads25% Brads50&5% FurnitureList plus 15%</p> <p>NAIL PULLERS. See Pullers.</p>	<p>NAIL SETS. See Sets.</p> <p>NETTING, POULTRY. Galvanized before weaving...50% Galvanized after weaving...40%</p> <p>NIPPERS. End Cutting. Berg's (Swedish) In 5 6 Per dozen.....\$12 60 15 20 End and Diagonal Cutting. Berg's (Swedish) In 5 6 Per dozen\$10 05 13 00 Hoof. Heller's40&10% V. & B., No. 52, each...\$3 25</p> <p>NOZZLES. Hose. Magicper doz. \$9 50 Diamond 5 75</p> <p>NUTS, HOT PRESSED. Square Tapped. \$2.41 off per 100 lbs. Hexagon Tapped. \$2.41 off per 100 lbs.</p> <p>OILERS. Chase Pattern. Brass and Copper.....10% Zinc20%</p> <p>Railroad. Coppered33&4% Steel. Copper Plated50-10-5%</p> <p>OPENERS. Can. Delmonicoper doz. \$1 30 Never Slip..... 65 Crate. V. & B.....per doz. \$7 25-11 00</p> <p>OUTFITS, COBBLING. Combinationper doz. \$16 00 Economy 8 50 Family 14 50</p> <p>PAIS. Cream. 14-qt. without gauge,per doz. \$9 50 18-qt. without gauge,per doz. 11 00 20-qt. without gauge,per doz. 11 75 Sap. 10-qt. IC Tin....per doz. \$4 00 12 " " " 5 50 Stock. Galv. qts. 14 16 18 20 Per doz. \$9 75 10 75 12 75 14 50 Water. Galvanized qts. 10 12 14 Per doz.\$5 75 6 50 7 25 Wood. Cable, 2-Hoop....per doz. Nets Cable, 3-Hoop.... " Nets Cedar, 3-Hoop, brass " Nets</p> <p>PANS. DrippingNet Fry. CommonNets Acme "</p> <p>Roasting. Paxton, Nos. 1 2 3 4 Per doz.Nets Neverburn Savory, No. 100...per doz. \$8 40</p> <p>PAPER. Roofing.per square Major, 1-ply\$1 33 " 2-ply 2 24 " 3-ply 2 65 Red Rosin.....per ton \$111 45</p> <p>Sand and Emery. No. 1, per ream, best grade \$5 40 No. 1, per ream, cheaper grade 4 85</p>	<p>PARERS. Apple. Goodell'sper doz. \$10 30 Turntable 11 40 White Mountain " 8 40 Reading No. 78 " 11 40</p> <p>Potato. Goodell's Saratoga, 10 1/4 in., doz. 6 50 Goodell's Saratoga, 5 in., doz. 5 50</p> <p>PICKS. Adze Eye Ore.....22 1/4% Drifting and Poll Picks.....22 1/4% Plumbs, Railroad22 1/4% Surface22 1/4%</p> <p>PINCERS. Carpenters', cast steel, No. 6 8 10 12 Each \$0 56 \$0 72 \$0 93 \$1 03 Blacksmiths', No. 10.....\$ 96 Heller'sList plus 10%</p> <p>PINS. Clothes Common, per box of 5 gro. \$0 95 Picket. Flutter, 15-in....per doz. \$1 10 Pluted, 21-in.... " 1 60 Spiral 1 90</p> <p>PIPE. Conductor. Plain Round and Round Corru- gated. 29 Gauge55¢ 28 "45¢ 26 "35¢ 24 "10% Square Corrugated A and B and Octagon. 29 Gauge40% 28 "40% 26 "30% 24 "10% Galvanized Toncan Metal, Genu- ine O. H. Iron, Lyomore Metal, Charcoal Iron and Keystone C. B. Plain Round and Round Corru- gated. 29 Gauge40% 26 "35¢ 24 "10% Square Corrugated A and B Polygon and Octagon. 29 Gauge40% 26 "30% 24 "10% 14 and 16-oz. Copper, all de- signs10%</p> <p>Portico Elbows. Galvanized and Terne Steel. 1-inch35% 1 1/4-inch35% 1 1/2-inch35% 2-inch35% Discounts on Round apply on sizes 2-inch to 6-inch inclusive. Freight allowed on 15 dozen or more, to all points where freight rate does not exceed \$1.00 per 100 lbs. Less than 15 dozen F. O. B. Factory. Terms 30 days net, 2% ten days. Standard Gauge Conductor Pipe, plain or corrugated. Not Nested60 & 10% Nested solid60 & 15%</p> <p>Stove. Per 100 Joints 28 Gauge, 5-inch.....\$15 00 " 6-inch..... 16 00 " 7-inch..... 17 00 30 Gauge, 3-inch..... 10 00 " 4-inch..... 11 50 " 5-inch..... 13 00 " 6-inch..... 14 00 " 7-inch..... 17 00 T-Joint Made up. 6-inchper 100 \$40 00</p> <p>Furnace Pipe. Double Wall Pipe and Fit- tings40% Single Wall Pipe, Round Pipe Fittings40% Galvanized and Black Iron Pipe, Shoes, etc.....40%</p> <p>PLANES. Stanley Iron Bench....Net</p> <p>PLIERS. V. & B. No. 6.....each \$0 57 " No. 7 Gas..... 0 60 " Double Duty 106.. 0 56 " Nut No. 3..... 0 64</p>	<p>Lineman's Side Cutting. Berg's (Swedish). In. 6 7 8 Blk. Pol. Face, doz.\$10 70 20 00 21 25</p> <p>Long Nose Side Cutting. Berg's (Swedish) In. 5 6 Blk. Pol. Face, doz. \$12 25 15 20</p> <p>Flat and Round Nose. Berg's (Swedish) Flat, In. 4 6 8 Blk. Pol. Face, Doz.\$8 90 13 35 19 65 Berg's (Swedish) Round, In. 4 6 8 Blk. Pol. Face Doz. \$11 15 16 30 23 35</p> <p>POINTERS, SPOKE. Stearns' No. 1....per doz. \$10 00 " No. 2.... " 12 00</p> <p>POKERS, STOVE. Wrt Steel, str't or bent,per doz. \$0 75 Nickel Plated, coll han's " 1 10</p> <p>POLISH. Metal. Wizard, 6 -oz. per gross \$21 00 " 1/4-pt. " " 24 00 " 1/2-gal. " " 12 00 " 1 -gal. " " 21 00</p> <p>Stove. Per gross Black Eagle Paste 5 -oz. \$19 20 " " 1/2-lb. 21 60 Black Eagle Liquid, 6-oz. per gross. 16 20 Black Kid Paste, 5-oz. per case 19 25 Black Kid Paste, 1-lb. \$1 60 Black Jack Liquid, 1/4-pt. per gross 16 20 Black Kid Liquid, 1/4-pt. 24 00 Black Jack Paste, No. 10 per gross 16 20</p> <p>PRESSES, FRUIT AND JELLY Enterprise Manufacturing Co. 25%</p> <p>PRUNERS. Disston's Pole....per doz. \$18 00 Water's Improved...per doz. 60%</p> <p>PULLERS. Cork. Daisyeach \$3 10 Phoenix " 1 40 Quick and Easy.... " 2 70</p> <p>Nail. Giantper doz. \$14 50 Never-Slip 17 00</p> <p>PULLWAYS. Awning-Jay'd10% Clothes Line10%</p> <p>Hay Fork. Iron Wheel, 5-in. per doz. \$2 50 Wood Wheel, 6-in. " 2 65 Wood Wheel, 6-in., pass knot 2 00</p> <p>Sash. CommonNet Common-Sense, 2-in.....Net Empire Pattern, 2-in.....Net IdealNet SteelNet</p> <p>PUMPS. Spray. Midget Junior....per doz. \$3 75 New Misty 6 00 Crescent 6 50</p> <p>PUNCHES. Conductors. No. 22.....per doz. \$3 00 Machineper lb. 25</p> <p>Saddlers'. Common...per doz. \$1 50 to \$5 60</p> <p>Revolving Spring. Stearns, No. 10...per doz. \$3 00 " No. 40.. " 16 00 " No. 49.. " 19 00</p>
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PATTY. Strictly pure...per 100 lbs. \$6 00	SAWS. Hand. Disston's 2-in. to 18-in. 10&5% " 1/4-in. to 1 1/2-in. 10&10%	SETS. Nail. Square head.....per doz. 1 84 Cup point, knurled " 1 78	SPRINKLERS, LAWN. Stearn's No. 1....per doz. \$11 80
RAIL. Barn Door. Matchless, 1-in..... 5c Matchless, 1 1/4-in..... 7c Storm King 5c Sliding Door. Bronzed wrought iron, per ft. 8 1/2c	Butchers'. Disston's No. 2, 14-in.... 18 20 " No. 2, 18-in.... 19 60 " No. 2, 22-in.... 20 85 " No. 7, 16-in.... 20 00 " No. 7, 20-in.... 21 35 " No. 7, 24-in.... 23 35 " No. 7, 28-in.... 26 00	Rivet. Farmers'per doz. 2 50 Tinnars' 3-4 5 75 " 00-0 8 75	SQUARES. Steel and Iron.....Net (Add for bluing, \$3.00 per doz. net) MitreNet Try Try and Bevel..... Try and Miter..... Fox'sper doz. \$6 00 Winterbottom's10%
RAKES. Garden. per doz. Steel, Bow, 12-in. Teeth \$8 50 Steel, Bow, 14-inch " 9 25 Malleable Iron, 12-in. " 4 75 Malleable Iron, 14-in. " 5 00	Compass. Disston's No. 20 Jackson.. 4 30 " No. 40 Sampson. 2 60 " No. 277, 10-in.... 6 70 " No. 9, 10-in.... 7 70	Saw. Alken's Pattern..per doz. \$6 50 Disston's Monarch " 7 20 Disston's X-cut " 13 50 Leach's " 80 Nash's Hand " 3 15 Nash's X-cut " 4 20 Stillman's Lever.. " 1 30 Stillman's X-cut " 2 50 Whitting Pattern, " 7 50 No. 21 Eccentric Anvil, Hand No. 395, N. P. Morrill Pat- tern 14 50	SQUEEZERS, LEMON. Common Wood....per doz. \$0 70 Porcelain Lined, Wood " 1 25 Boss, malleable iron " 1 20 Iron frame porce'n bowl 1 90 Iron frame, glass bowl 2 35 Little Giant, tin'd iron 4 00 Drum, japanned " 3 60 Drum, nickel plated. " 4 50
May. Wood, 10 Teeth.....\$4 00	Cross-Cut. Disston's No. 289, 4-ft... 3 50 " No. 289, 6-ft... 6 85 " No. 289, 8-ft... 11 85	SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect 1 20	STAPLES. Blind. Barbedper lb. 21 @ 22c Butter, Tub 16 @ 19c
Lawn. 20 Teethper doz. 5 50	Flooring. Disston's D19, 16-in..... 37 15 " D19, 20-in..... 34 35	SHEARS. Nickel Plated, Straight, 6" \$12 90 " " " 7" 14 85 " " " 8" 16 30 Japanned, Straight " 11 00 " " " 7" 12 40 " " " 8" 13 50	Fence— Polishedper 100 lbs. \$5 45 Galvanized " 15
RAZORS—SAFETY. Gilletteper doz. \$45 00 Auto Strop 45 00 Gem 8 40 Gem (3 doz. lots) " 8 00 Ever Ready " 8 40 Ever Ready (3 doz. lots) " 8 00	Hand and Rip. Disston's No. 7, 30-in.... 38 50 " No. 7, 32-in.... 42 90 " No. 8, 16-in.... 21 35 " No. 8, 20-in.... 25 15 " No. 8, 24-in.... 29 60 " No. 8, 28-in.... 33 45 " No. 8, 30-in.... 39 90 KeystoneNew Nets	SHEAVES, SLIDING DOOR. Common. Inches 3 4 5 Per set\$1 40 1 75 2 40	Netting. Galvanizedper 100 lbs. 6 50
RAZOR STROPS. Star (Honing)50%	Keyhole. Disston's No. 5..... 3 65 " No. 10..... 4 00 " No. 95..... 6 30	Hatfield's. Per set \$1 30 2 10 2 75 25	Wrought. Wrought Staples, Hasps and Staples, Hasps, Hooks and Staples, and Hooks and Staples50&10% Extra heavy35%
REGISTERS. Cast Iron20% Steel and Semi-Steel.....30% Baseboard30% Adjustable Ceiling Ventilators 20%	Miter Box. Disston's No. 4, 4x20-in.. 36 15 " No. 4, 5x22-in.. 43 25 " No. 4, 6x22-in.. 47 20	SHELLERS, CORN. Unionper doz. \$6 75	STEELYARD. Discount 25%.
REGISTER FACES. Japanned, Bronzed and Plated. 4x6 to 14x14.....30% 14x14 to 38x42.....50%	Patternmakers'. Disston's 7 1/4-in 12 05	SHIELDS. Expansion Bolt Shields.....60%	STONES. Axe. Hindostanper lb. New Nets More Grit " " " Washita " " "
REVOLVERS. Iver Johnson Safety Automatic HammerNet Hammerless I. J. Model 199....."	Pruning. Disston's No. 20..... 20 80	SHINGLES. Zinc (Illinois).....Per Square \$15 00	Emery. No. 126.....per doz. New Nets
RINGS AND RINGERS. Copper2 1/4-in. 3-in. Per doz. \$2 40 \$2 65 Faa's Improved Self- Pivoting copper, doz. 2 40 Steel, per doz..... 1 50 1 80	Stairbuilders'. Disston's 6-in. 7 90	SHOES. Conductor60%	Oil—Mounted. Arkansas Hard No. 7.....per doz. New Nets Arkansas Soft " " Washita No 717. " "
Blair's Rings.....per doz. \$ 75 Blair's Ringers.. " 1 00 Brown's Ringers. " 72 Brown's Ringers. " 1 00 Hill's Ringers.... " 1 00 Hill's Ring, boxes " 72 Major Rings " 60 Perfect Ringers " 1 50 Wolverine Rings. " 1 10 Wolverine Ringers " 1 10	Wood. Disston's No. 111, 30-in.. 22 20 " No. 111, 32-in.. 22 75 " No. 47, 30-in.. 20 25 " No. 47, 32-in.. 20 80	SHOT—See Ammunition. SHOVELS AND SPADES. Coal. Hubbard's No. A B C D 1 \$16 00 15 10 14 45 13 70 2 16 35 15 60 14 85 14 10 3 16 75 16 00 16 25 14 45 4 17 10 16 35 16 60 14 85	Oil—Unmounted. Arkansas Hard per lb. New Nets Arkansas Soft.. " " Lilly White.... " " Queer Creek... " " Washita " "
Hubbard's Rings.....per doz. \$ 75 Hubbard's Ringers.. " 1 00 Brown's Ringers. " 72 Brown's Ringers. " 1 00 Hill's Ringers.... " 1 00 Major Rings " 60 Perfect Ringers " 1 50 Wolverine Rings. " 1 10 Wolverine Ringers " 1 10	SAW FRAMES. Common, plain.....per doz. \$1 50 Common, painted " 2 10	SHOES. Conductor60%	Scythe. Black Diamond per gro. New Nets Crescent Green Mountain " " LaMoille Extra Quinne- bog Red End
Blair's Rings.....per doz. \$ 75 Blair's Ringers.. " 1 00 Brown's Ringers. " 72 Brown's Ringers. " 1 00 Hill's Ringers.... " 1 00 Major Rings " 60 Perfect Ringers " 1 50 Wolverine Rings. " 1 10 Wolverine Ringers " 1 10	SCISSORS. Star60%	SHOES. Conductor60%	Scythe. Black Diamond per gro. New Nets Crescent Green Mountain " " LaMoille Extra Quinne- bog Red End
Blair's Rings.....per doz. \$ 75 Blair's Ringers.. " 1 00 Brown's Ringers. " 72 Brown's Ringers. " 1 00 Hill's Ringers.... " 1 00 Major Rings " 60 Perfect Ringers " 1 50 Wolverine Rings. " 1 10 Wolverine Ringers " 1 10	SCRAPERS. Box. Triangular, No. 6 per doz. \$6 25	SHOES. Conductor60%	Scythe. Black Diamond per gro. New Nets Crescent Green Mountain " " LaMoille Extra Quinne- bog Red End
Blair's Rings.....per doz. \$ 75 Blair's Ringers.. " 1 00 Brown's Ringers. " 72 Brown's Ringers. " 1 00 Hill's Ringers.... " 1 00 Major Rings " 60 Perfect Ringers " 1 50 Wolverine Rings. " 1 10 Wolverine Ringers " 1 10	Road. Cubic ft. 7 5 3 With runners, ea. \$7 00 6 50 6 20	SHOES. Conductor60%	Scythe. Black Diamond per gro. New Nets Crescent Green Mountain " " LaMoille Extra Quinne- bog Red End
Blair's Rings.....per doz. \$ 75 Blair's Ringers.. " 1 00 Brown's Ringers. " 72 Brown's Ringers. " 1 00 Hill's Ringers.... " 1 00 Major Rings " 60 Perfect Ringers " 1 50 Wolverine Rings. " 1 10 Wolverine Ringers " 1 10	SCREEN DOOR HINGES. Cast irongross \$13 00 Steel 9 50	SHOES. Conductor60%	Scythe. Black Diamond per gro. New Nets Crescent Green Mountain " " LaMoille Extra Quinne- bog Red End
Blair's Rings.....per doz. \$ 75 Blair's Ringers.. " 1 00 Brown's Ringers. " 72 Brown's Ringers. " 1 00 Hill's Ringers.... " 1 00 Major Rings " 60 Perfect Ringers " 1 50 Wolverine Rings. " 1 10 Wolverine Ringers " 1 10	SCREWS. Bench. Iron, ins. 1 1 1/4 1 1/2 \$6 82 7 87 9 45 16 80 Wood, white maple, per doz. 6 00	SHOES. Conductor60%	Scythe. Black Diamond per gro. New Nets Crescent Green Mountain " " LaMoille Extra Quinne- bog Red End
Blair's Rings.....per doz. \$ 75 Blair's Ringers.. " 1 00 Brown's Ringers. " 72 Brown's Ringers. " 1 00 Hill's Ringers.... " 1 00 Major Rings " 60 Perfect Ringers " 1 50 Wolverine Rings. " 1 10 Wolverine Ringers " 1 10	Hand—Wood50% Hand Rail22% Jack30% Lag or Coach—all sizes, gimlet pointed45-50%	SHOES. Conductor60%	Scythe. Black Diamond per gro. New Nets Crescent Green Mountain " " LaMoille Extra Quinne- bog Red End
Blair's Rings.....per doz. \$ 75 Blair's Ringers.. " 1 00 Brown's Ringers. " 72 Brown's Ringers. " 1 00 Hill's Ringers.... " 1 00 Major Rings " 60 Perfect Ringers " 1 50 Wolverine Rings. " 1 10 Wolverine Ringers " 1 10	Saw—Centennial, Nos. 1 2 3 4 Per doz.....47c 55c 75c 90c	SHOES. Conductor60%	Scythe. Black Diamond per gro. New Nets Crescent Green Mountain " " LaMoille Extra Quinne- bog Red End
Blair's Rings.....per doz. \$ 75 Blair's Ringers.. " 1 00 Brown's Ringers. " 72 Brown's Ringers. " 1 00 Hill's Ringers.... " 1 00 Major Rings " 60 Perfect Ringers " 1 50 Wolverine Rings. " 1 10 Wolverine Ringers " 1 10	Wood. F. H. Bright72 1/2-80% F. H. Blue70-80% F. H. Jap'd65-80% F. H. Brass65-80% R. H. Brass62 1/2-80%	SHOES. Conductor60%	Scythe. Black Diamond per gro. New Nets Crescent Green Mountain " " LaMoille Extra Quinne- bog Red End
Blair's Rings.....per doz. \$ 75 Blair's Ringers.. " 1 00 Brown's Ringers. " 72 Brown's Ringers. " 1 00 Hill's Ringers.... " 1 00 Major Rings " 60 Perfect Ringers " 1 50 Wolverine Rings. " 1 10 Wolverine Ringers " 1 10	SCYTHES. Clipper, Grassper doz. \$13 50 Honest Dutchman.. " 13 00	SHOES. Conductor60%	Scythe. Black Diamond per gro. New Nets Crescent Green Mountain " " LaMoille Extra Quinne- bog Red End

TAPES, MEASURING.

Asses' Skin.....List+40%

THERMOMETERS.

Tin Case.....per doz. \$0c@ \$1 25
Wood Back.. " \$2 00@ 12 00
Glass" 12 00

TIES.

Bale.
Single Loop, carload
lots75&7%
Single Loop, less than
car lots.....70&15%

TOOLS, SAW.

Disston's Universal.....10%

TRAPS.

Game with Chains. Per doz.
Victor No. 1.....\$2 01
Onesida Jump No. 1.....2 75
Newhouse No. 1.....5 62
Mouse and Rat. Net per gross
Out O'Slight Mouse.....\$ 20
" " Rat21 00
" " Mole140 00
No. 44 Pocket Gopher.....23 00
Victor Mouse.....3 64
Hold Fast Mouse.....3 64
Victor Rat.....15 40
Hold Fast Rat.....15 40
Official Rat.....18 90
Wood Choker Mouse, 4
Holes15 40

TROWELS.

Brick.
Clover Leaf.....30%
Brade's15&5%
Disston's30%
Rose'sNetPlasterers'.
Clover Leaf.....40%
Disston's25%
W. & McP.....Net

TRUCKS.

Bageach \$3 75
Warehouse or store,
No. 1, each.....\$24 50
No. 2, "22 50

TUBS, WASH.

Standard, Wood. Ex.
Nos. ... 3 2 1 large
Per doz. \$9 50 11 25 12 75 15 50Galvanized.
No. 1 2 3
Per doz.....13 75 15 95 18 60

TWINE.

-ply Cotton Wrapping.....\$9 85
4 " Extra Wrapping..
4 " Hvy. Wrapping..
4 " Wrapping on tubes
3 " cones..
India Hemp, 1/2-lb. balls,
No. 4 1/2.....36c
No. 635c
No. 833c
No. 18
2-ply Jute, 1 1/2-lb. balls, lb.....49cSeins.
Softper lb.....Net
Med. " .."
Hard " .."
Staging, 1/2-lb. ball, size 21 " 24 "
" " " 27 " 27 "
Bagging, 1/2-lb. ball, size
3-ply "B" in hanks.....
4 " " " .."
3 " " " .."
3 " " " .."
3 " Silver Finish in hanks "

VISES.

No. 700, Hand,
Inches 4 1/2 5 5 1/2
Dox.\$11 15 13 00 14 55
No. 701, In. 4 5 6
Dox.\$11 15 13 00 16 70
No. 1, Genuine Wentworth,
Noiseless Saw.....per doz. 15 00
No. 2, Genuine Wentworth,
Noiseless Saw.....per doz. 22 50
No. 3, Genuine Wentworth,
Noiseless Saw.....per doz. 26 00
No. 500, All Steel Folding
Sawper doz. 16 00

WARE.

Glue Pots.
Tinned.....Add 15% to list
Enameled.....30%

WASHERS.

Standard O. G. cast iron, per
lb.3%
Wrought steel in 5-lb. boxes,
per lb.:
In 3/16 1/4 5/16 3/8 1/2
18c 16c 15c 13c 12c
11 1/2c 11c 11c 11c

WEDGES.

Ax.per doz. Nets
Gallingper lb. Nets
Sawper lb. 8 1/2

WEANERS.

Calf.
Fuller's, per doz. \$2 00 to \$2 50
Tyler's Safety, per
doz.1 35 to 2 40
Carroll's, per doz. 3 00 to 3 75
Hoosier, per doz. 3 50 to 4 60
Shaw Perfected.. 3 00 to 3 75

WEIGHTS.

Hitching.....per lb. Nets
Sash—f. o. b. Chicago.
Ton lots, per ton.....\$73 00
Smaller lots, per ton.....75 00

WHEEL BARROWS.

No. 4 Tubular Steel.....\$38 00
Common Tray or Stave
Tray4 00
Angle leg. garden.....6 50

WHEELS.

Carborundum50%
Emery60%
Well, Ins. 8 10 12
Per doz.....\$5 50 7 25 8 50
12-in. heavy hoisting,
per doz.....\$25 00

WIRE.

Brass.
In coils.....Nets
In 1-lb. spools, new list...NetsBroom—TinnedNets
Copper.
In coils.....Nets
1-lb. spools, new list...NetsFence—Smooth. Annealed Galv'd
Nos. 6 to 9, less than
car, per 100 lbs. \$4 35 \$4 95Hair—New list.....40 & 10%
Picture—In coils..80% \$80 & 10%
In 5-lb. spools...per lb.....26c

WRENCHES.

Coes Steel Handle, 6-inch...30%
" " " 8- "30%
" " " 10- "30%
" " " 12- "30%
Coes Knife-Handle, 6- "30%
" " " 8- "30%
" " " 10- "30%
" " " 12- "30%Coes All Patterns.....30%
Bemis & Call's:
Adjustable S, 10% Adjustable
S Pipe, 10%; Briggs'
pattern30%
Combination Bright.....25%
Steel Handle Nut.....30%
Combination Black.....25&5%
Merrick Pattern.....30%Knife-Handle Pattern.
No. 62, Screw Wrench, List
plus30%
No. 60, Steel Handle.....30%

WRINGERS.

No. 790, Guarantee, per doz. \$63 50
No. 770, Bicycle .. " 61 00
No. 670, Domestic.. " 56 00
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No. 750, Guarantee.. " 63 50
No. 740, Bicycle .. " 61 00
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Federal Varnish Co., Chicago, Ill.</p> <p>Fence Gates. American Steel & Wire Co., Chicago, Ill. Pittsburgh Steel Co., Pittsburgh, Pa.</p> <p>Fencing Wire. Pittsburgh Steel Co., Pittsburgh, Pa.</p> <p>Fenders. Meyers Mfg. Co., Fred J., Hamilton, Ohio</p> <p>Files. Heller Bros. Co., Newark, N. J.</p> <p>Flux—Aluminum. Roesch, Geo. E., Aurora, Ill.</p> <p>Freezers—Ice Cream. North Bros. Mfg. Co., Philadelphia, Pa.</p> <p>Furnace Rings. Independent Reg. & Mfg. Co., Cleveland, Ohio Walworth Run Fdy. Co., Cleveland, Ohio</p> <p>Garages—Metal. Wellman Supply Co., Springfield, Mass.</p> <p>Guards—Fire. Meyers Mfg. Co., Fred J., Hamilton, Ohio</p> <p>Hammers. Vaughan & Bushnell Mfg. Co., Chicago, Ill.</p> <p>Handles—Boiler. Berger Bros. Co., Philadelphia, Pa.</p> <p>Handles—File. Parker Supply Co., New York, N. Y.</p> <p>Hangers—Eaves Trough. Abbott Mfg. Co., Cleveland, Ohio W. C. Hopson Co., Grand Rapids, Mich.</p> <p>Heaters—School Room. 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Co., Chicago, Ill.</p> <p>Lath—Expanded Metal Milwaukee Corrugating Co., Milwaukee, Wis.</p> <p>Machines—Crimping. Bertsch & Co., Cambridge City, Ind. Niagara Machine & Tool Works, Buffalo, N. Y.</p> <p>Machinery—Culvert. Bertsch & Co., Cambridge City, Ind.</p> <p>Machines—Razor Blades. Hyfield Mfg. Co., New York, N. Y.</p> <p>Machines—Stove Pipe. Hemp & Co., St. Louis, Mo.</p> <p>Machines—Tinmiths. Bertsch & Co., Cambridge City, Ind. Dreis & Krump Mfg. Co., Chicago, Ill. Hemp & Co., St. Louis, Mo. Kniedler, Frederick J., Philadelphia, Pa. Maplewood Machinery Co., Chicago, Ill. Marshalltown Mfg. Co., Marshalltown, Iowa Niagara Machine & Tool Works, Buffalo, N. Y. Whitney Mfg. Co., W. A., Rockford, Ill.</p> <p>Mailing Lists. Ross-Gould, St. Louis, Mo.</p> <p>Meat and Food Choppers. Enterprise Mfg. Co. of Pa., Philadelphia, Pa.</p> <p>Metals—Perforated. Harrington & King Perforating Co., Chicago, Ill.</p> <p>Miters. Friedley-Voshardt Co., Chicago, Ill.</p>	<p>Nails—Slatting. 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